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Agricultural Outlook Forum 1999



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Speech Booklet 1

Monday, February 22

For release 7:00 a.m., February 22

2:00-3:30 FARM INCOME AND FINANCE OUTLOOK

Micro Dynamics of Income, Debt Management, and Farm Financial Performance

Mitchell Morehart, James Johnson, and James Ryan, Agricultural Economists, Economic Research Service, USDA

Business and Practice Adjustments of Farmers to Improve Bottom Lines in Today's Farm Economy

Michael D. Duffy, Professor and Extension Economist, Iowa State University

Farm Credit Conditions During the Contraction of the 1980's and Now

Robert Collender, Senior Economist, Economic Research Service, USDA

2:00-3:30 PRICE DISCOVERY--2000 AND BEYOND

Market Performance and Price Discovery Issues in an Industrialized Agriculture

Michael Boehlje and Otto Doering, Department of Agricultural Economics, Purdue University

2:00-3:30 NEW APPROACHES TO DIRECT MARKETING BY FARMERS

"Homemade"-- The Paradigms and Paradoxes of Changing Consumer Preferences: Implications for Direct Marketing

Desmond A. Jolly Ph.D., Agricultural Economist and Director, Small Farm Program, University of California - Davis

3:45-5:15 AGRICULTURAL RISK MANAGEMENT TOOLS FOR THE FUTURE

Farmers and Derivatives--A Successful Combination in the 21st Century

Joe Dial, Consultant in Global Derivatives Markets Development

Managing Risk through Crop Insurance: Value Added by Bundling Products

E. Eugene Gantz, Senior Vice President, Marketing and Public Relations, Rain and Hail L.L.C.

3:45-5:15 USDA AGRICULTURAL STATISTICS--THE CENSUS AND BEYOND

Planning the Statistics Program for the Future

Frederic A. Vogel, Director, Estimates Division, National Agricultural Statistics Service, USDA

3:45-5:15 MARKET DEMAND/VALUE-ADDED APPROACHES TO INCREASING FARM INCOMES: THE ROLE OF NEW-GENERATION COOPERATIVES

Forming a Value-Added Cooperative

Mike Warner, Chairman of the Board, United Spring Wheat Processors; Director, Dakota Growers Pasta Company

MICRO DYNAMICS OF INCOME, DEBT MANAGEMENT AND FARM FINANCIAL PERFORMANCE

Mitchell Morehart, James Johnson, and James Ryan
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U.S. Department of Agriculture

Recent world events have illustrated that farming is a global business. During the latter half of 1998, the U.S. experienced substantial price declines for many agricultural commodities. These market developments were largely unanticipated and particularly difficult to accept on the heels of the unusually high price levels experienced during 1996-97. World stocks of grains and oil crops remain quite high and there are no imminent signs of increasing demand. While there is cause for concern regarding the financial outlook for commodities that have been traditionally viewed as major contributors to the farm economy, it is easy to overlook positive developments in other segments of agriculture. Livestock producers have benefited from low grain prices in the form of cheaper feed. Cash receipts for poultry and eggs are expected to approach \$24 billion in 1999, almost three times what they were in 1980. Similar, but less dramatic growth has occurred for the vegetable, fruit, tree nut, nursery, and greenhouse subsectors, where their combined receipts should eclipse \$40 billion in 1998. These commodities have not only grown steadily over the last 20 years, but they also represent a larger share of total receipts in agriculture.

The forecasting activity that supports USDA's outlook for the farm economy is designed to give a national picture of where things are headed. Before contemplating the implications of the financial outlook for agriculture, a brief review of 1998 is provided for context. A presentation of 1999 forecasts and the longer-term outlook as it relates to USDA's Baseline follow this. We then turn to the primary focus of this paper, which is to reconcile the broad perspective for the national farm economy with the diverse mix of farms and farm households that comprise the sector. Two unique classifications of farms are developed which comprise factors that are argued to most influence differences in financial performance among farms. Using these alternative frameworks we explore the micro dynamics of income, debt management, and financial performance based on USDA's Baseline projections for the 1998-2003 period.

Closing the Books on 1998

1998 was a year of wide swings in financial circumstances for farmers and the economic health of the sector. At this time last year our net farm income forecast of \$42 billion anticipated a financial downturn in the agricultural economy. We highlighted producers specializing in the production of wheat, corn, cotton, and hogs as the industry sectors most likely to encounter difficulty. By late spring, wheat harvest problems in the Northern Great Plains were evident. With prospects for larger harvests during the summer, attention turned to grains and oilseeds. Farmers in the South, particularly cotton producers, experienced weather adversity in 1998 from

drought, hurricanes, and flooding. Finally, producers have endured dramatic declines in prices received for hogs. Production flexibility payments and loan deficiency payments under the 1996 Act, combined with supplemental support from the provisions of last fall's appropriation bill, provided nearly \$13 billion in direct income assistance. These direct payments, \$5.4 billion more than paid in 1997, combined with reductions in expenditures for inputs and increased receipts in some commodity sectors provided a footing for sector-wide earnings near \$48 billion. At this level, net farm income would be down \$1.8 billion from 1997 and \$5.4 billion below 1996's record. In terms of the balance sheet, current evidence suggests that annual debt expansion in recent years slowed in 1998. We anticipate that even with some evidence of declines in the latter part of the year, land values increased for the year, but at a slower pace. Given the importance of the balance sheet to the overall financial health of the farm sector, we look forward to 1998 land value estimates based on a survey of farmers that will be released by the Department next month.

Near and Long-term Outlook for Production Agriculture

The financial outlook for U.S. agriculture remains favorable, despite recent price collapses for many commodities. Net farm income for 1999 is forecast at \$44.6 billion, near the 1990-97 average of \$45.5 billion (*figure 1*). Additional government support coupled with relatively stable production expenses and improvements in receipts for some commodities (notably livestock, cotton, fruit, and nursery and greenhouse products) will soften the adverse impact of low grain prices on 1999 calendar year net farm income. In large part, the strength of the farm economy is derived from stability of the balance sheet. Assets are expected to continue to increase in value, though at a slower rate than for the previous five years. Growth in farm sector debt is expected to level off, perhaps even decline a modest amount, halting a six-year period of annual increases. Farmers' equity in agricultural assets is expected to increase for the tenth straight year totaling more than \$900 billion at year-end 1999 (*figure 2*).

Net farm income from 1998-2008 is expected to average modestly higher than during 1990-97, but is unlikely to reach the 1996 record again during the projection period (*figure 3*). However, lower farm commodity receipts, particularly crop receipts, lead to declining net farm income from 1998 to 2000. Given the baseline price and production projections, crop cash receipts will bottom out in 2000, begin rising in 2001, and continue to grow through 2008. Livestock receipts are also expected to grow from a 1998 forecast of \$93.4 billion to \$118 billion by 2008. Lower production expenses should help offset lower receipts in the near term, but the long-term trend is toward modestly rising costs. As an indicator measuring the solvency of the farm sector, the debt-to asset ratio will remain favorable for 1998-1999 and is forecast to decline continually through 2008 (*figure 4*).

Farmers Use of Repayment Capacity to Rise in 1999 and Beyond

Farmers are expected to use their available credit lines more fully in 1999, and throughout the 2000-2003 period. Lenders generally require that no more than 80 percent of a loan applicant's income be used for repayment of principal and interest on loans. For farm operators, income available for debt service (measured in the sector accounts as net cash income plus interest expense) can be used to determine the maximum loan payment the farmer could make while

satisfying typical debt coverage ratio requirements. Using current bank interest rates and a 7-year repayment period, maximum feasible debt conceptually measures the line of credit that could be available to farmers.

Net cash income averaged almost \$60 billion during 1997-98. It is expected to fall below \$57 billion in 1999 and decline further to less than \$53 billion in 2000. Net cash income is anticipated to remain in the low- to mid-\$50s for the 2000-2003 period. As a result, the maximum feasible debt that farmers' could service with current income is expected to decline by more than 11 percent from 1998 to 2000 (*figure 5*). Slightly improving incomes after 2000 are expected to increase farmers' potential credit lines by about 5 percent by 2003. After declining slightly in 1999, total farm operator debt is projected to rise gradually so that by the end of 2003 it stands about 11 percent higher than at the end of 1998. Farmers' unused borrowing capacity is anticipated to decline during 1998-2003, as farm debt rises faster than repayment capacity.

Farm debt repayment capacity utilization (actual debt expressed as a percentage of maximum feasible debt) effectively measures the extent to which farmers are using their available lines of credit. This ratio indicates that farmers are expected to use almost 57 percent of the debt that could be supported by their current incomes in 1999. Effects of expected favorable interest rates and reduced debt in 1999 will not be sufficient to offset the impact of lower net cash income. The persistence of lower income, relative to 1997-98, is expected to produce a steady rise in farmers' use of debt repayment capacity during 2000-2003, despite anticipated modestly rising debt levels and relatively favorable interest rates (*figure 6*).

What Can We Glean From the National Outlook?

Even with low prices for many commodities, USDA's outlook for the farm economy remains somewhat optimistic. This situation, to some, represents an irresolvable contradiction. For example, one might wonder how we can forecast \$2.00 corn and at the same time suggest that the farm sector will remain financially sound.

POSTULATE 1: The financial outlook for U.S. agriculture in total can be very different than the perspective for any particular industry segment.

Given the diversity of businesses that make up the production agriculture sector, there can exist pockets of financial distress even when the sector as a whole is viewed as financially sound. The likelihood of such an event is heightened when financial difficulties stem from low commodity prices as opposed to input cost increases, which tend to have broader impacts. Corn, soybeans, and wheat represent less than one-half of total crop receipts and therefore any changes in prices for these commodities have a somewhat limited impact on total crop receipts (*figure 7*).

POSTULATE 2: Even within industry segments there is a continuum of financial performance.

Not all farms that are similar in structure and commodity emphasis earn equivalent profits. Looking at economic cost for farms that specialize in the production of corn suggests that farms across the size spectrum were able to generate returns in excess of all economic costs, including a return to the operator's labor and management. These farms are represented by the dots below

the economic breakeven line in *figure 8*. Thus, the impact on farms and farm households of changes in either economic conditions at home or abroad, or in policy actions focused on specific issues, may be very different depending upon the production and financial organization of the business, and household decisions with regard to allocation of their time and resources.

Recognizing that differences in aggregate financial performance exist and that these distinctions are difficult to grasp from the sector outlook, it is important to focus on factors that influence variability. We find it useful to examine two primary sources:

- 1) natural resource characteristics and
- 2) individual decision making and management ability.

Agriculture's Micro Dynamic Diversity

The U.S. farm sector consists of a highly diverse set of businesses and farm households committed to living in rural areas and engaging in farm economic activities. Farms range from the more than 800,000 largely self-contained small scale businesses that are operated by retirees, residential and lifestyle farmers to farms that tend to be more industrial in organization, featuring complex management and business decision frameworks and a wide assortment of linkages to other farm and non-farm businesses. Since the early 1900's, U.S. Department of Agriculture analysts have sought to identify patterns in U.S. farming that might further the understanding of differences in the financial performance of farms and the economic well-being of farm households. The climatic, soil, water, and topographical base of a geographic area tend to constrain the number and types crops and livestock that are well adapted. County clusters, based on types of commodities produced, have shown that a select few commodities tend to dominate the production landscape of geographic areas that cut across traditional political boundaries.

Recently, this work has been extended to show correspondence between geographic regions based upon physical and environmental characteristics of the land area and regions based upon commodity mix and production decisions. Farmers' decisions about the use of resources, including their financial and natural resource base, are influenced by several factors. Among these are the goals held for their businesses and for their households, career choices, including how to allocate work hours and managerial talents, and stage of development, growth, and life cycle, both for the business and for farmers themselves. To more carefully capture differences among farms and farm households, two classifications of farms have been developed to reflect resource, economic, and demographic attributes of farms and areas. These classifications, one a resource-based regional delineation, and the second a farm typology based on occupational choice and sales volume, provide more homogeneous groupings of farms and farm households for use in assessing the distributional effects of changes in the farm economy.

Resource-based Regional Delineation's

The Economic Research Service has used regional groupings of states and counties to present its farm structure and financial information for many years. Typically, regional groupings have followed traditional political boundaries, primarily for state or multi-state areas. Regions that cut across state boundaries have been developed and included in research reports focused on

measuring and reporting agriculture's diversity. More recently, spatial modeling techniques have been used to determine how key financial and policy indicators are distributed across the geographic landscape. Previous work has provided little insight about the inherent physical and environmental production capability of areas. The regions reported in this paper merge information about characteristics of land areas with information about types of commodity production to generate geographic areas that, while cutting across state boundaries, are more homogeneous with regard to both resource and production activities (see text box for region definitions).

How does the 1999 forecast portion across resource regions?

The brunt of financial difficulties stemming from cash flow problems anticipated for 1999 fall on three regions, the Heartland, Mississippi Portal, and Northern Crescent (*figure 9*). In each of these regions, the decline in average net cash income ranges anywhere from 11 percent (Northern Crescent) to 18 percent (Heartland). These regions were not the most susceptible to financial difficulties arising from cash shortfalls. This magnitude of a decline in net cash income would be much more problematic if it were to occur in the Northern Great Plains or Prairie Gateway regions. These regions began 1999 with 8 percent of farms in a vulnerable financial position and another 13 percent of farm businesses with debt representing more than 40 percent of assets.

Farm businesses located in the Heartland region, particularly those with corn and soybeans as their primary commodities, will experience the most severe cash flow problems in 1999. Given the current forecast of continued low commodity prices for corn and soybeans, net cash income is expected to be 18 percent lower than 1998 and 35 percent below 1997's average of \$50,555. More than one in four farms will not earn enough income to cover expenses in 1999, which is 10 percentage points higher than for 1997. The impact of cash flow problems, while significant, will be more difficult to manage for the region's 6 percent of farms that have the combination of negative income and high debt levels. These vulnerable farm businesses will need to quickly address the shortfall in earnings by liquidating inventories or tapping other working capital, selling off machinery and equipment, or perhaps subsidizing farm losses with off farm income or savings. Those without sufficient equity to manage the problem will need to restructure loan terms and as a consequence reorganize their operation.

Mississippi Portal farm businesses are also expected to experience cash flow difficulties in 1999. Lower receipts for cotton and soybeans and reduced government payments result in a 13 percent decline in average net cash income between 1998 and 1999. In 1999, 18 percent of the region's farm businesses are not expected to cover cash expenses compared with 16 percent in 1997. The share of vulnerable farms could reach 7 percent by 1999.

The situation in the Northern Crescent region is somewhat unique among regions with more than a ten percent decline in average net cash income between 1999 and 1998. This was one of the few regions where 1998 net cash income was above 1997's value, thanks in large measure to higher milk prices. The combination of falling milk prices in 1999 and relatively low grain prices will result in an 11 percent decline in net cash income. For this region, 1999 net cash income is not much below 1997's average of \$50,268. With 1999's lower cash income, the share of farm businesses with negative net cash income increases by only two percentage points.

What does the long-term financial picture look like in the various regions?

USDA's baseline projects declining income for the farm sector during 1999-2003, but not all regions are expected to experience similar trends. Most regions averaged at least a five percent annual increase in net cash income calculated over the 1993-98 period, with the Fruitful Rim (15 percent) and Mississippi Portal (12 percent) regions leading the way (*figure 10*). Of course, record earnings in 1996-97 contributed significantly to this trend. Even with relatively high earnings during 1996-97 average net cash income remained fairly constant in three regions, the Northern Great Plains, Basin and Range, and Heartland. The regional outlook for net cash income over 1998-2003 suggests that cash flow problems are likely to persist in the Heartland, and Northern Great Plains regions. The annual average change in net cash income approaches minus five percent in each of these regions, with each region establishing new lows in net cash income by 2001. In the Heartland region, average net cash income does begin to increase slowly after 2001. As a result of persistent lower incomes in these regions, farm debt will remain fairly high relative to that which can be repaid from current income. Farmers are projected to continue using available credit lines fully in both regions. In the Northern Great Plains, debt repayment capacity utilization remains above 70 percent during 2000-2003. While this measure improves in the Heartland, it stays above 60 percent throughout this period (*figure 11*).

A significant negative rate of change (-3.9 percent) in net cash income also occurs in the Mississippi Portal region. In contrast with other regions that are expected to have declining income, average net cash income never falls below the previously established regional low of \$56,700 in 1995. The regional diversity of financial circumstances exhibited in the forecasts is also evident in the result that both the Fruitful Rim and Eastern Uplands have a positive annual change in average net cash income. Average net cash income is expected to remain near 1998 levels in the Southern Seaboard region. Another distinct pattern of change in net cash income which is characterized by variability is exhibited in the Northern Crescent region where average net cash income declines through 2000 and increases back to 1997 levels by 2003.

Implications of declining income over 1999-2003 range from the notable deterioration in overall financial performance in the Heartland region to relative stability in the Eastern Uplands. To some extent, the degree of financial problems that arise from cash flow adjustments depend on the beginning financial strength of businesses, the magnitude of decline in income, and duration of the downward trend. Two of these factors went against the Heartland region. The impact of declining incomes would have been much more severe had not this region started the period with one of the highest percentages of farms in a favorable financial position (72 percent).

Structural Typology

Both the number and size of farms and the socioeconomic characteristics of farm operators and resource owners are among the key dimensions of farm structure.¹ Indicators of farm size have normally drawn on some measure of physical size of operation or some measure of economic output. The Nation Commission on Small Farms recently defined a small farm as a farm with

¹ Other key dimensions of structure include the degree of specialization in production and organization of the farm firm, ownership and control of productive resources, and barriers to entry.

sales of less than \$250,000. Choices with regard to farm organization, financial structure, commodity mix, production systems and practices, and allocation of resources among farm and non-farm activities are influenced by characteristics of the farmer and his or her household. ERS has developed a typology of farms that jointly considers the economic size of business and occupational decision of farmers with less than \$250,000. Recognizing both farm and farm operator attributes enables us to partition farms that are operated by a person who considers himself or herself to be retired from farms that are more actively engaged in production. Farms operated by persons who consider their primary occupation to be in a non-farm occupation can also be treated separately. Finally, farms that are either limited in their resource base or whose primary occupation is farming can be considered. (See text box for definitions).

How does the 1999 forecast breakout across these groups?

Changes in average household income in 1999 are expected to come from a decline in household income from farming rather than off-farm income, where the forecast reflects a continued strong performance in the general economy. The most serious cash flow adjustments for farm households occur for Large Family Farms (primary occupation farming and gross sales of \$250,000 to \$499,999), small farms with sales between \$100,000 and \$249,999 whose operators report farming as their primary occupation (Farming Occupation/Higher Sales), and farm households of the Very Large Farms. These farm typology groups are projected to have declines in average household income from 1998 of 15 percent, 11 percent, and 8 percent; respectively. The decline in household income for the other typology groups is forecast between 2 percent and 4 percent (*figure 12*).

What does the long-term financial picture look like for different groups?

Most typology groups averaged at least a 4-percent annual increase in household income over the 1993-98 period. Limited-resource farms were the only typology group that had a negative average annual change in household income (-0.68) over this 5-year historical period (*figure 13*). Large swings in household income from farming for the Large Family Farm group kept the annual average change in household income below 2 percent. The longer-term outlook suggests that farms most dependent on the farm business for income will experience the largest declines in household income. The Large Family Farm typology group is estimated to have annual average change in household income of minus 3.6 percent during 1998-2003. Average household income bottoms out at \$56,400 in 2001 and begins to increase slowly. Small farms with sales between \$100,000 and \$249,999 whose operators report farming as their primary occupation (Farming Occupation / Higher Sales) also had relatively large negative change in annual average household income over the period. In contrast with Large Family Farms, average income for the Farming Occupation/Higher Sales typology group does not fall below the low in household income established in 1994 of \$36,500.

What Does Diversity Suggest for Performance of Sector Subgroups during 1999 and beyond?

Farmers and ranchers produce in highly a competitive global marketplace. The past year's economic events and large harvests in both customer and competitor nations emphatically made this point. Global events have had a wide range of impacts on U.S. farms and on regions of the country. The agricultural sector is becoming more diverse, producing food and fiber, fuels,

medicines, and industrial products. New environmental regulations, energy policies, and new technologies contribute to the diversity of the sector. Farms are diverse as well. ERS research has illustrated how changes in structure and performance vary across a continuum of farm sizes, farm organizational structures, and farm populations. While the economies of most places in the United States are not dependent on farming, the welfare of rural communities can be significantly affected by changes in the sector. Research indicates that actions farmers take to control costs are key elements for them to be able to compete and operate their business with successful outcomes. We need to build on this work to provide information helpful to farmers in making decisions about production systems and practices potentially useful in lowering costs, and conserving production and financial resources.

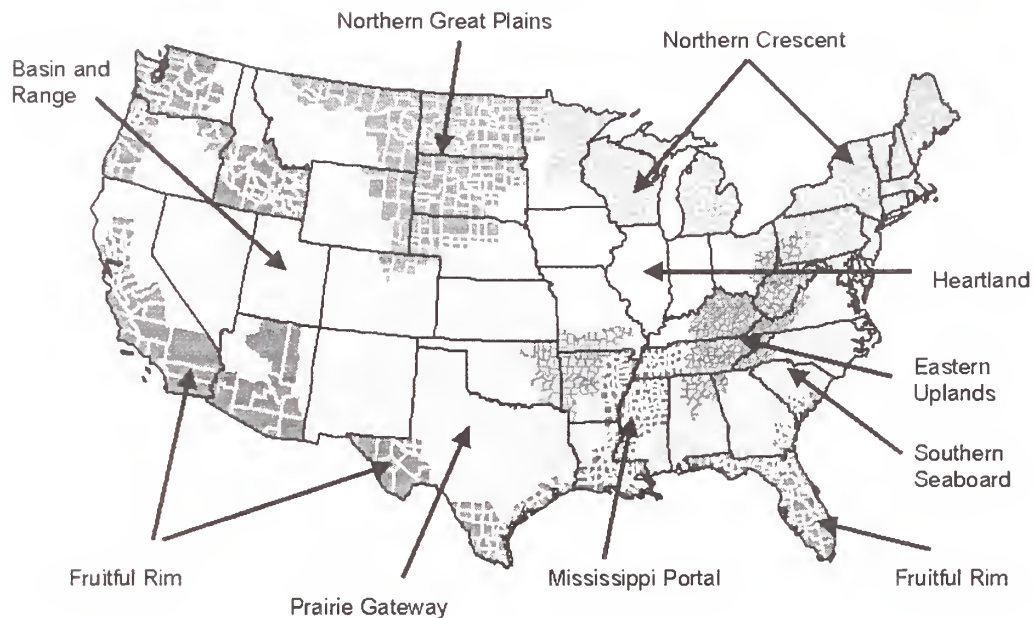
End-Note

Stay tuned for quarterly updates since this is a year when prices, input costs, and other factors that ultimately affect farm finances are subject to considerable change as we move through the year.

Geographic Areas Based on Land Resource Regions and Commodity Clusters

- **Northern Crescent.** Dairy farms were 17% of farms in 1997. Other major farm types included general field crop (23 %) and cash grain farms (19%). Area had 9% of U.S. cropland; slightly more than proportional acreage in corn, soybeans, and specialty crops. Most populous region.
- **Eastern Uplands--**15% of nation's farms but only 5% of the value of production. Beef farms most prevalent type (48% of farms). Tobacco, general field crop, and other livestock were also prominent. Region has 6% of U.S. cropland. 60% of farms had sales of less than \$10,000 in 1997.
- **Southern Seaboard--**11% of nation's farms and 9% of value of production in 1997. Two-thirds of farms were livestock farms. Beef farms most common type followed by general field crop and other livestock. Area covered 6% of Nation's cropland, but is over represented in rice, cotton, and specialty crop acreage. Region has 11% of U.S. population.
- **Heartland--**More than 20% of nation's farms located here, accounting for 23% of the value of production. Region has more than 25% of U.S. cropland, and the largest concentration of corn, soybean, and sorghum acreage. Cash grains and field crops dominate (3 of each 5 farms). Hog farms are also more common than elsewhere.
- **Mississippi Portal--**5% of farms and 4% of value of production in 1997. Beef farms were most common (44% of all farms). Cotton, rice, mixed crop and livestock farms were also common to the region. Region has 4.9% of cropland, but more than proportionately represented in cotton and rice.
- **Northern Great Plains--**Characterized by nation's largest farms, measured by acres operated. Cash grain, field crop, and beef farms are 95% of all farms. Region has 17% of cropland; more than proportionately represented in wheat, barley, oats and specialty crops.
- **Prairie Gateway--**Second highest share of U.S. cropland (19%). Tied with Northern Great Plains in wheat, oats, and barley acreage (35%) and is second behind Mississippi Portal in rice and cotton acreage.
- **Basin and Range--**4.5% of nation's farms and 4% of value of production in 1997. Features second largest farms based on acres operated. Beef farms were the most common farm type (41%). Farms growing high value crops 2nd most common (13%), followed by general field crop operations. Cash grains were 10% of farms. Region has 4% of cropland despite a large land area due to federal land holdings.
- **Fruitful Rim--**8% of cropland but 32% of specialty crop acreage and 21% of rice and cotton acres. Region has largest share of large and very large family operations as well as a large share of non-family farms. Over 37% of farms specialize in production of high value crops.

Resource Regions



The Farm Typology

Small Family Farms (sales less than \$250,000)

1. **Limited-resource farms.** Any small farm with: (1) gross sales less than \$100,000, (2) total farm assets less \$150,000, and (3) total operator household income less than \$20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.
2. **Retirement farms.** Small farms whose operator's report they are retired. (Excludes limited-resource farms operated by retired farmers.)
3. **Residential/lifestyle farms.** Small farms whose operators report they had a major occupation other than farming. (Excludes limited-resource farms with operators reporting a nonfarm major occupation.)
4. **Farming occupation/lower-sales.** Small farms with sales less than \$100,000 whose operators report farming as their major occupation. (Excludes limited-resource farms whose operators report farming as their major occupation.)
5. **Farming occupation/higher-sales.** Small farms with sales between \$100,000 and \$249,999 whose operators report farming as their major occupation.

Other Farms

6. **Large family farms.** Sales between \$250,000 and \$499,999.
7. **Very large family farms.** Sales of \$500,000 or more.
8. **Nonfamily farms.** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

Figure 1
Net Farm Income To Decline in 1999

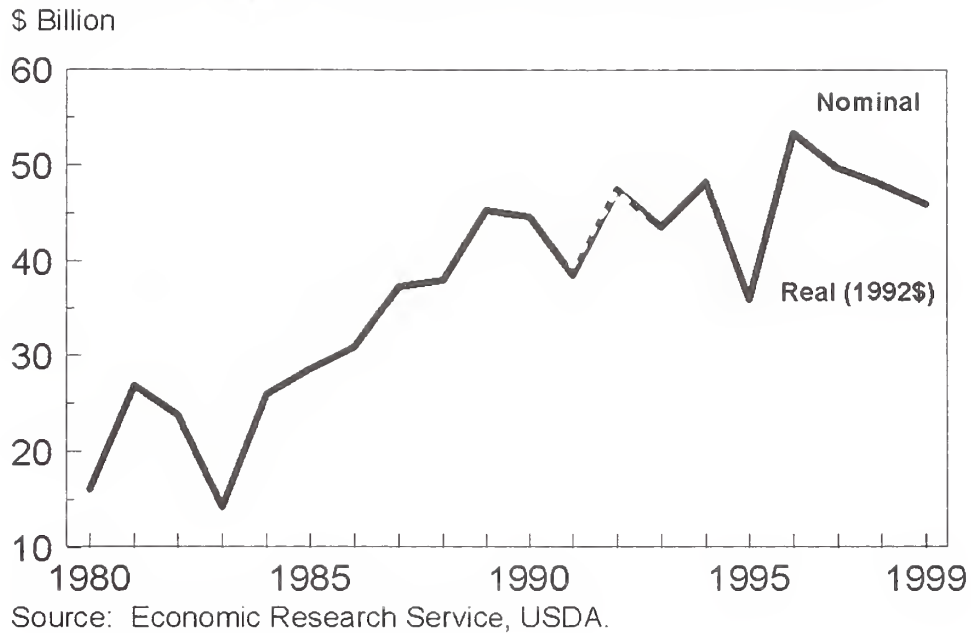


Figure 2
Farm assets, debt, and equity
Equity increasing since 1986

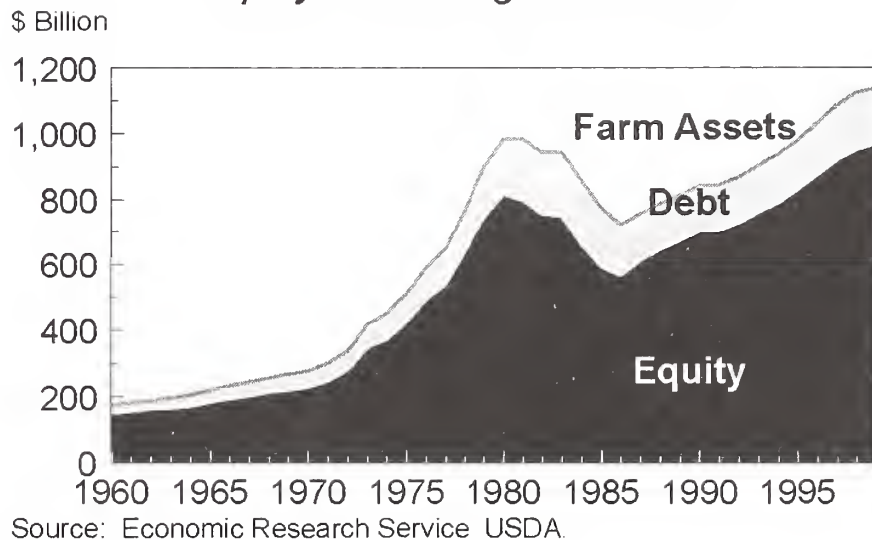
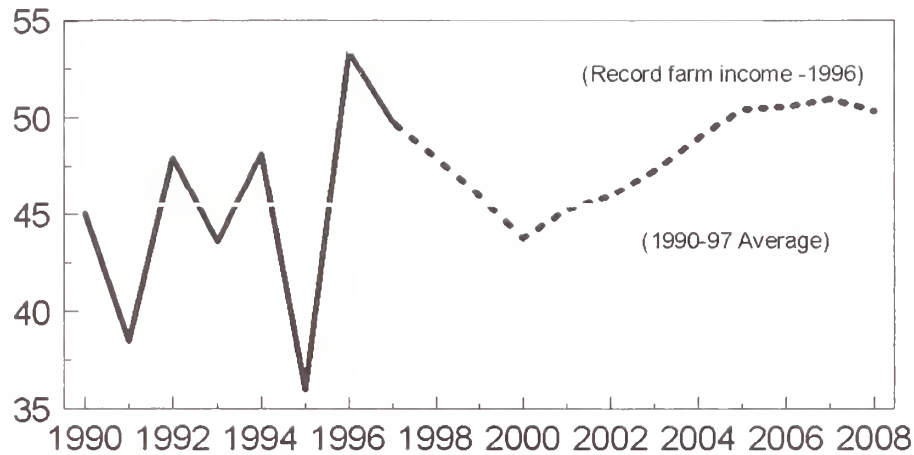


Figure 3

Projected 1998-2008 modestly higher than 1990-97 average, but below record farm income in 1996

\$ Billion



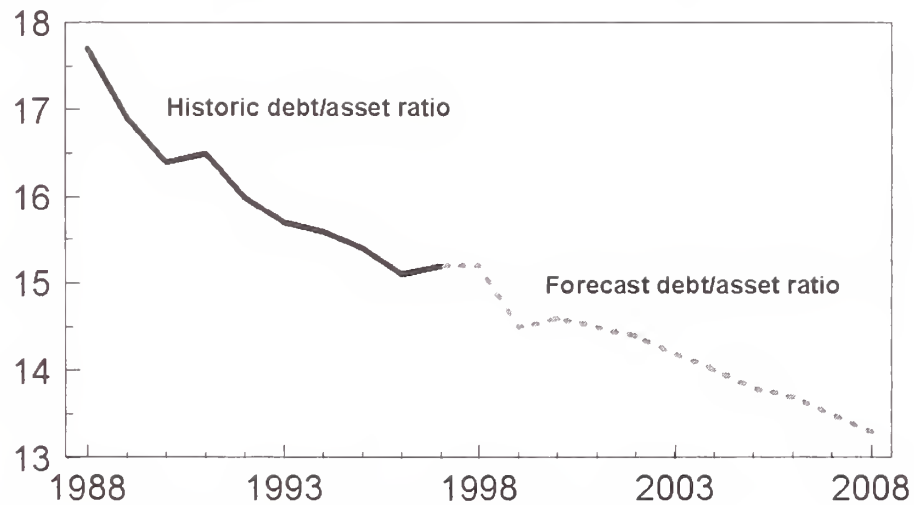
Source: Economic Research Service, USDA.

Figure 4

Debt-to-Asset Ratio, 1988-2008

Favorable in 1998-99, and forecast to decline through 2008

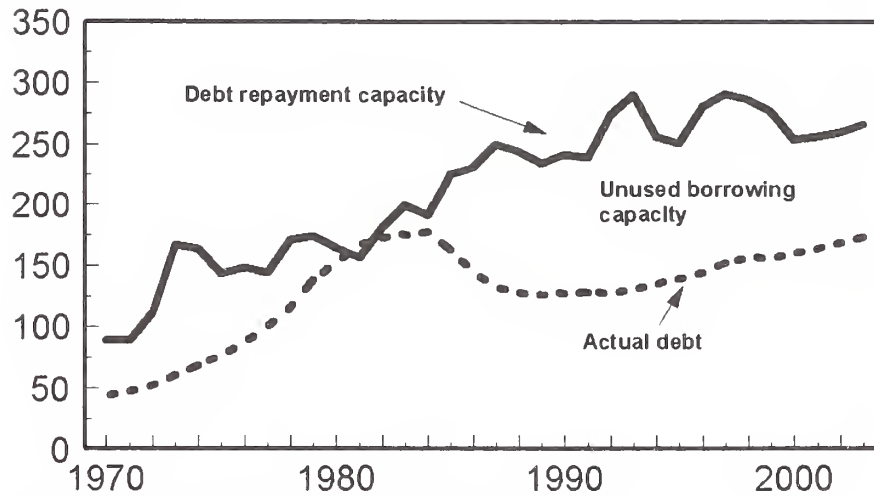
Ratio



Source: Economic Research Service, USDA.

Figure 5

Farm operators' still have substantial borrowing capacity available, despite recent rise in actual debt
\$ billion

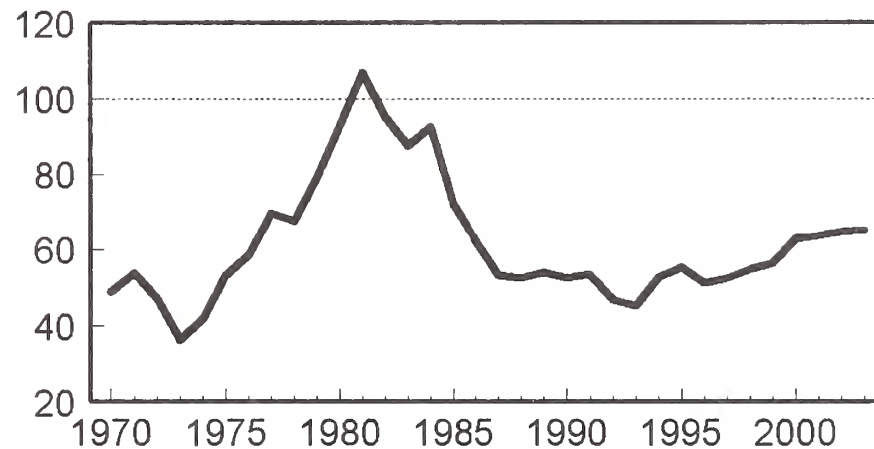


Source: Economic Research Service, USDA.

Figure 6

Debt repayment capacity utilization, 1970-2003

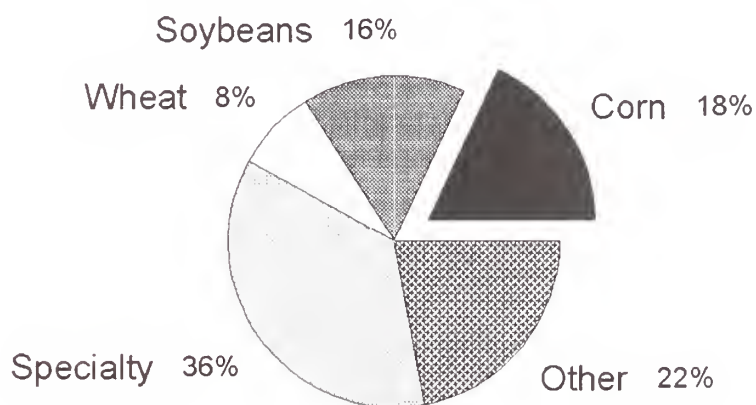
Percent



Note: Actual debt compared with a hypothetical maximum debt that could be carried based upon repayment capacity.

Source: Economic Research Service, USDA.

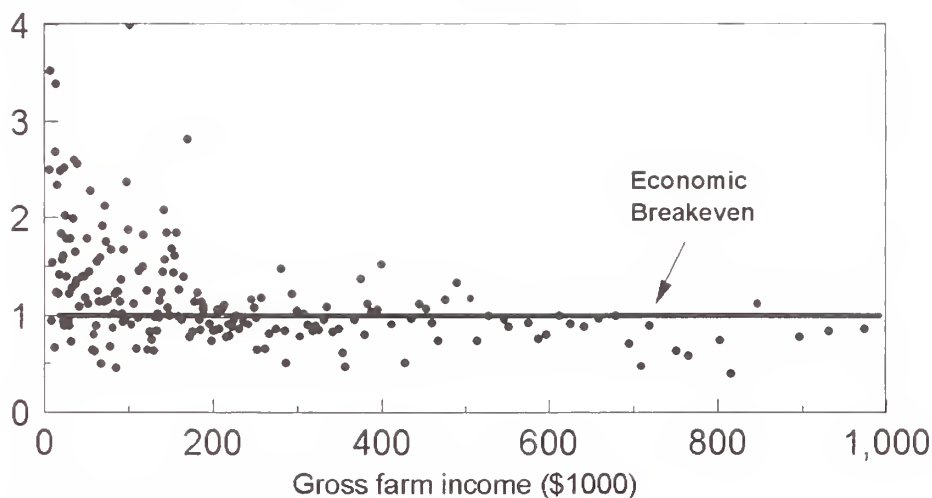
Figure 7
Commodity shares of total crop receipts, 1997



Source: Economic Research Service, USDA.

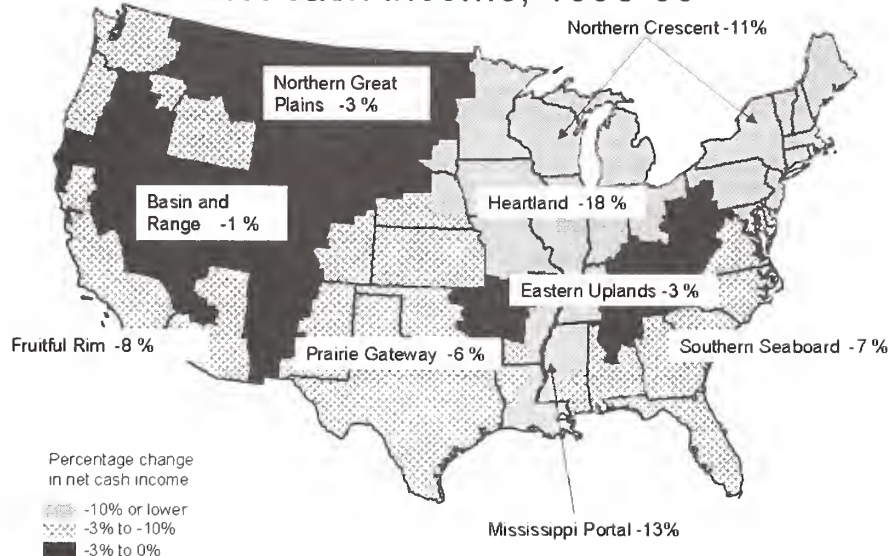
Figure 8
Economic costs per dollar of gross cash income for farms that specialize in corn production, 1997

Economic costs



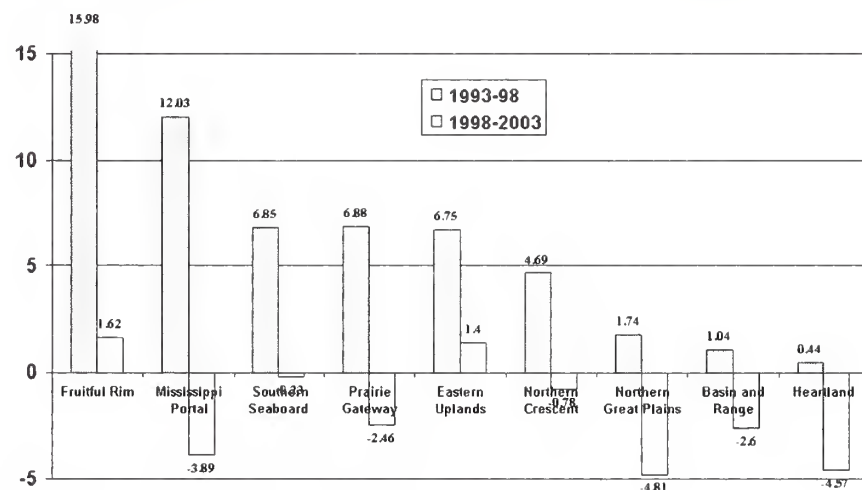
Source: Economic Research Service, USDA.

Figure 9
Percentage change in projected average
net cash income, 1998-99



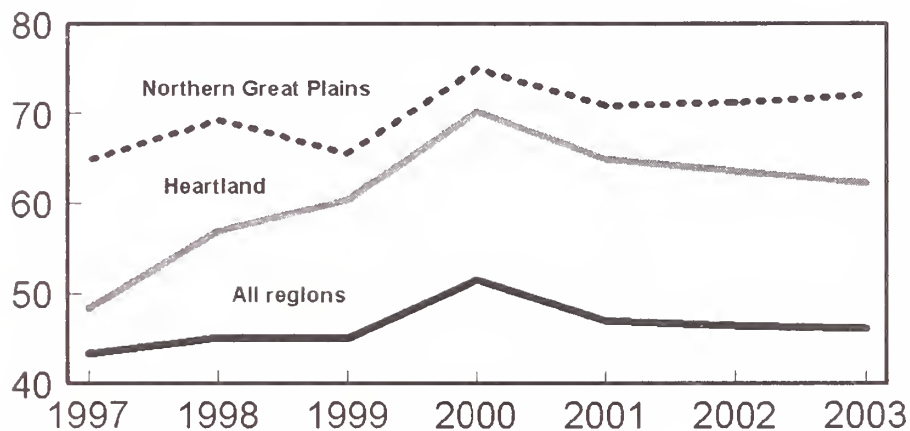
Source: Economic Research Service, USDA.

Figure 10
Annual average percentage change in projected net
cash income for the 1993-98 and 1998-2003 periods



Source: Economic Research Service, USDA.

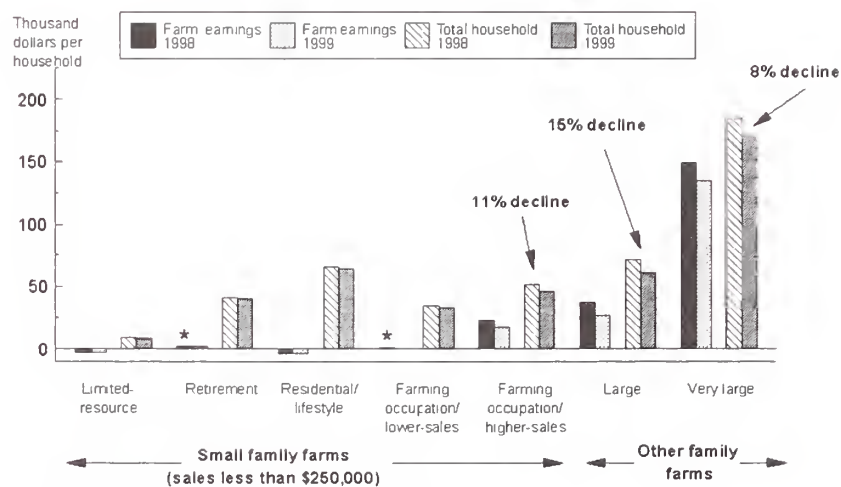
Figure 11
Debt repayment capacity utilization higher in Heartland, Northern Great Plains, 1997-2003
 Percent



Note: Farms with sales greater than \$50,000

Source: Economic Research Service, USDA.

Figure 12
Projected average operator household income by source and by farm typology group, 1998-99

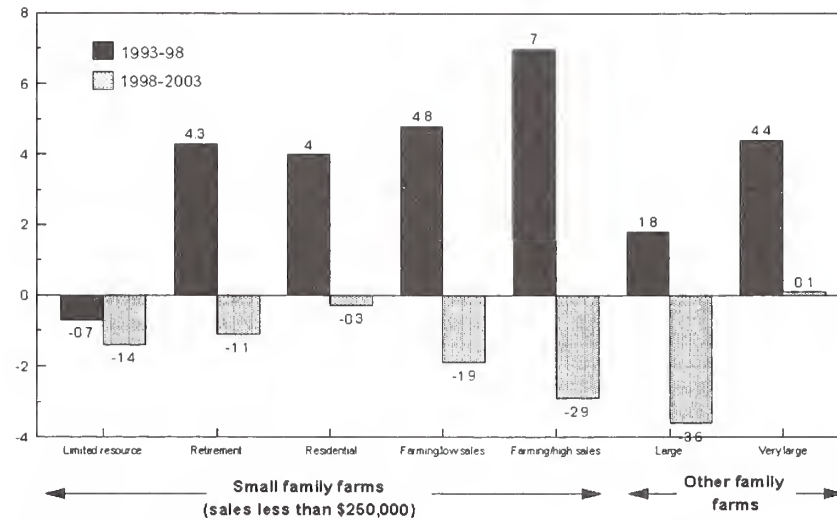


* = CV for the farm earnings estimate is greater than 75 percent

Source: Economic Research Service, USDA

Figure 13

Average annual percentage change in projected household income for the 1993-98 and 1998-2003 periods



Source: Economic Research Service, USDA.

ADJUSTMENTS IN BUSINESS AND PRACTICES:
HOW FARMERS CAN IMPROVE THE BOTTOM LINES IN TODAY'S FARM ECONOMY

Michael D. Duffy
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Iowa State University

Introduction

Good afternoon! I appreciate the opportunity to be with you today. In the time I have allotted I would like to share with you some of the responses I have seen to the low commodity prices and some possibilities that I am recommending to Iowa farmers.

I am an Extension Economist in farm management at Iowa State University. The examples that I will use come from Iowa. However, I think that they will be similar to the situations and responses seen in other Midwestern states.

One of my jobs for ISU Extension is coordinating the Farm Financial Management Program which started in Iowa in 1983 as a response to the farm financial crisis that was occurring at that time. We have kept the program active and today it represents one of ISU's primary responses to the current farm financial situation.

The Farm Financial Planning Program consists of trained Extension associates who work one-on-one with individual farm families and use the computer program FINPACK. However, the Farm Financial Planning Program is more than a simple computer analysis of the farm finances. The associates are also trained to work with the families in helping to identify alternatives, seek out other sources of information and help and, in general, provide a neutral third party to work with the farm family.

Currently there are 15 of these associates throughout Iowa. In addition to their part-time work with Extension, the associates are also active farmers. Some of the associates have been with the program since the beginning and others are new this year.

My work with the associates and their comments will form the basis for some of what I want to share with you today. Their insights often help me as I work with the broader issues facing the agricultural community.

Before discussing some of the business and farm practice adjustments that we are seeing, I would like to share with you some observations on the situation and where we stand currently. Although the low commodity prices affect everyone, it is apparent that some are being more

adversely impacted than others. As one of the associates commented, “there are haves and have-nots”.

Two important factors influence the impact and adjustments to the current financial situation. First, the past few years have been very good income years. High corn and soybean prices and the passage of the Federal Agriculture Improvement and Reform (FAIR) Act led to a general feeling of euphoria throughout Iowa. There was a feeling that “with the government off our backs” and the unveiling of major trade opportunities, agricultural fortunes were going to improve substantially. A second factor that influenced the adjustments to this period is the rapidly changing structure within the production sector. This is especially true in pork production but there also are changes in cropping due to genetic alterations, grain contracting and other events.

These two factors caused a more pronounced reaction to this downturn in production agriculture. The bubble burst very rapidly and many producers are asking themselves if they even want to be participants in the new environment.

The current downturn in the farm economy first surfaced during early to mid- summer 1998. One indication was land values. In May, participants at the 72nd ISU Soil Management and Land Valuation Conference projected a 15 percent increase in land values for the year 1998. For the past ten years, the participants’ prediction has been within 3 or 4 percent of the values reported in the ISU Land Value Survey. This year the ISU survey showed a 1.9 percent decrease in values, rather than the 15 percent increase that had been projected.

The mood of farmers at ISU Experiment Station field days at the end of August was very somber. However, record or near record yields, coupled with the extra government payments, helped improve the mood, at least for the cash grain farmers. For farmers with swine the situation deteriorated throughout the year, ending with the lowest hog prices ever seen.

The collapse in the farm economy led to questions about the failure of FAIR and whether we were returning to a situation similar to the 1980s. There also has been considerable bantering about how serious the situation is and what, if any, should be the appropriate response at both the state and federal levels. There were emergency funds provided to agriculture and there have been many proposals for helping the farming community in general and swine producers in particular.

One ISU study by Jolly and Vontalge, based on data from the Iowa Farm Business Association, used farm level data and a ranking scheme that looked at both the cash flow and the return to equity. This study showed that as many as one-third of Iowa’s farmers could go out of business within the next two to three years. The Association mainly represents Iowa’s full-time family-sized farms. It doesn’t have the very large farms, but it also does not have the small farms.

In spite of this study, it is difficult to ascertain the extent of the financial problems caused by the current situation. One of the associates likened the situation to a “deer in the headlights”, that is, people are just kind of paralyzed. They aren’t seeking help or taking any action because they just aren’t sure what to do or how serious the situation really is at this time. Some land auctions reports that there is still a strong demand for farmland. This would indicate that there

are still farmers and investors who have money and believe in the capacity of farmland to generate an adequate return.

Regardless of how serious you think the situation is today, the key is going to be how long the low commodity prices last. If the current low prices persist for the next year or so, the number of people severely impacted will continue to rise.

Adjustments

Four categories of adjustments are occurring. I will discuss each of these categories separately, but I do not have an estimate of the percentage or number of farmers falling into each category.

Some farmers are simply quitting and they can be divided into several different groups. Some are quitting simply to preserve the equity they have left. For a variety of reasons these farmers do not see a future in agriculture, or at least not a future for them. Rather than continue to farm and lose equity, they are choosing to exit now and pursue other employment alternatives. These are either middle-aged farmers with other alternatives or older farmers at retirement age.

Another group quitting farming are those who have acquired debt loads that their current operation is not able to support. This debt could have been incurred due to expansion, inefficient operations, or a variety of reasons. Regardless of the source of the debt, the farm simply cannot continue to operate.

A second response category contains farmers making major changes in their operations by dropping or adding enterprises. This is characteristic of swine producers. The months of red ink and the less than rosy prospects have made a number of swine producers look carefully at their position and interest in remaining in the swine industry.

It is very difficult to make general statements about who is exiting and who is staying in the swine industry, at least at the level we would normally consider as family farms. Three examples illustrate this point, and these are all people with whom I have worked in the past two or three months. One was a middle-aged producer with low cost of production in old, unconventional facilities. He had many other opportunities, and he viewed his choices as staying with the pigs and losing money until the price improved and then spending the rest of his career getting back to where he was today, or quitting now and keeping the crops while doing something else. That was the path he chose. Another instance was a young couple who wanted to stay with the swine industry, primarily through producing specialty pigs. They chose to delay purchases, maintain existing facilities, basically trying to ride out this period of low prices. Finally, the third producer was a younger man who had within the past three years invested considerable money into expanding his hog facilities. He was simply trying to persuade his lender to stay with him until things improved.

There are many other examples of people who dropped particular enterprises in response to the current farm economy. Some producers are eliminating the farrowing and simply using

their existing facilities for contract finishing of someone else's pigs. Some are trying to direct market or market their products through joint enterprises.

As noted earlier, another response category of farmers are those who are simply not doing anything and hoping that the situation will improve or that they will be able to survive the current round of low prices. It is important to remember these categories of farmers when thinking about a "sitting tight" strategy and what it foretells. Many farmers are part-time or retired farmers, other farmers are in a very strong equity position. As long as the price is above the cash cost of production, they will keep producing and not be too concerned. Problems may arise when they have to replace equipment or when they realize they are not earning a competitive return on their equity, but they simply enjoy farming and will continue to do so as long as it doesn't cost too much. The fourth category of farmers is trying to make adjustments in their production practices and in their financial arrangements to help them survive this current period.

A common reaction has been to "rebalance the balance sheet". For a variety of reasons, including an increase in credit card use and credit purchases, farmers today find themselves with a substantial amount of short-term debt. In other instances, rolling debt is accumulating because prices don't even cover the cash costs of production. This debt is not on any fixed type of payment schedule. Regardless of the source, many farmers are scheduling debt on a note to reflect the actual position and obligations of the farm. This debt is often secured with intermediate-term assets.

There are many other adjustments occurring in production practices, one of which is the number of trips across the field. For a variety of reasons, there has been a decrease in the use of conservation tillage. Reducing trips not only saves the soil; it saves expenses as well.

Pest management options are another area where farmers are adjusting their practices. Over the past few years, we have seen a dramatic drop in the use of row cultivation as a weed management option with herbicides used as a substitute. In times of low prices, the ability to decrease cash costs often outweighs the desire to save labor.

Farmers are doing less of their own spraying. In 1996, over 40 percent of Iowa's corn and soybean farmers did not apply any herbicides themselves and used custom applications. There are a variety of reasons for this, and while it may be the best approach for some people, it does represent an area where there is room for savings.

Fertilizer use is another area where considerable savings can be achieved. Over 80 percent of the corn acres receive phosphorus and potassium. However, two-thirds of the soils tested in the Iowa State Soil Test Lab rated high to very high in P and K. Research has shown that there is no yield response to adding P and K to these soils. By use of soil testing, farmers will be able to determine the level of nutrients available and whether or not P and K applications will be cost effective.

Planting rates is another area for savings. The recent trend, especially in soybeans, has been to narrower rows or drilling along with higher plant populations. Again, research has shown

that regardless of the row spacing, there is a level of maximum plant population above which there is no yield response. Many Iowa farmers are using planting rates above these levels.

In addition to the typical types of adjustments that can be made to reduce the costs of production, farmers are also increasing their use of the risk management tools. Today there are a variety of new insurance programs that were not available to farmers just a few years ago.

Conclusions

The severity of the current situation is being debated. However, for some producers, the situation is very serious. The key to how widespread the problems will become is how long the current round of low commodity prices lasts. The longer it lasts, the more people that will be drawn into the serious financial situation.

Farmers are responding in different ways. For some, simply fine tuning their operations appears to be the best approach. However, for others, the situation has deteriorated to the extent that their ability to continue in production agriculture is doubtful.

Some farmers are responding with fairly drastic changes in their farming operations. They are dropping enterprises or changing the way they market their products. Others have yet to make changes for a variety of reasons.

Over the past 45 years, there has only been one year (1981) where the average management return for the highest one-third profit group in the Iowa Farm Business Association was negative. That year was believed by many to be the start of the farm financial crises of the 1980s. Initial results from the Association for 1998 show that there is a strong likelihood that the year's average management return will be negative. The 1998 Iowa State Land Value Survey showed the first drop in land values in 11 years. Only time will tell whether or not these indicators presage another widespread financial crisis. Regardless, farms will have to make adjustments and one of the biggest is the change in attitude. We must start using the good times to even out the bad times. Farmers must also begin making adjustments based on their individual circumstances. There is no one "best" way to do something, and each individual farm has its own unique set of goals and resources. We must use this knowledge to make our decisions and adjustments.

Farm Credit Conditions During the Agricultural Contraction of the 1980's and Now

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While agricultural conditions in the last decade have in some ways been similar to those contributing to the boom and bust cycle of the 1970's and 1980's, important differences exist. Among the similarities are the role of agricultural exports, changes in the foreign exchange value of the dollar, adverse growing conditions followed by strong increases in production, and sustained increases in farm asset values and farm debt. Important differences include the role of interest rates and inflation, more conservative use of leverage by both farmers and lenders in recent years, and the more limited duration and amplitude of the recent up-cycle. Several factors could aggravate the current down-cycle, including some loss of off-farm opportunities, weather, foreign financial crises in importing countries and other exporting countries, and the unknown degree to which lenders may choose to reduce their exposure to creditworthy agricultural borrowers.

Introduction

The recent deterioration in many commodity prices following several years of healthy gains in farmland values and debt levels has led to speculation that agriculture could be entering a contraction similar to that of the 1980's. Prices for many key agricultural commodities (especially grains, oilseeds, and hogs) have fallen dramatically over the past 2 years. Preliminary 1998 real net farm income is lower than for 4 of the preceding 5 years, and net farm income is forecast to deteriorate further in 1999. Some have characterized the anticipated crisis as a "credit crisis," because lenders may balk at extending loans to agricultural borrowers who cannot demonstrate solid repayment ability. The degree to which low incomes create financial hardship depends on the initial financial strength of the farm, how far income falls, how long income remains low, and the decisions that farmers and lenders make as events unfold.

This paper begins by exploring the similarities and differences between credit conditions during the early 1980's and those currently facing agricultural borrowers by assessing such factors as the financial health of borrowers, the overall economic environment, and the financial strength of lenders. Subsequent sections review the conditions that helped spawn the 1980's crisis for production agriculture and for major agricultural lenders. This review concentrates on average indicators of financial performance of farmers and lenders.¹ The current cycle and current conditions are summarized and contrasted.

¹For information about the current distribution of distress among farm borrowers see the soon to be released article, "Who Holds Operator Farm Debt?," by James T. Ryan and Steven R. Koenig.

A Review: 1970's Boom, Perverse Economic Incentives Led to 1980's Bust

The Boom. Commodity prices surged from 1973 through 1975 and remained high through 1979 (fig. 1). During this period, farm incomes (fig. 2) and rates of returns on assets from current income and from real capital gains (fig. 3) were unusually large. The initial surge in farm incomes has been attributed to a variety of factors including a major change in the foreign exchange regime (in 1972 the U.S. abandoned the fixed exchange rate regime that had been in place since the end of World War II) accompanied by a devaluation of the dollar (fig. 4), adverse weather in competing production regions, and increases in effective demand for agricultural products abroad (fig. 5). The increase in farm income, readily available credit (fig. 6), rising inflation, and low to negative real interest rates (fig. 7) led to a bubble in farmland values (fig. 8) and sustained increases in farm investment in machinery and equipment (fig. 9).

The strength of the farm economy encouraged expansion and supported rising land values, but so did economic forces beyond the farm sector. Rising inflation and relatively low nominal interest rates supported increases in farmland values and in farm indebtedness. While financial assets lose value with inflation, real assets gain value. This fact encourages investors to shift their holdings from financial to real assets, exacerbating the value loss for financial assets and increasing the gain for real assets, including farmland.

In addition, low real interest rates (nominal interest rates less the rate of inflation) encouraged debt financing, since debt could be repaid in cheaper, inflated dollars as it came due. As shown in fig. 7, real interest rates were low or negative during much of the 1970's. From the beginning of the boom in 1972 through the peak in land values in 1981, farm debt grew 15 percent faster than assets. Of course, the increase in asset values was widely dispersed, but the increase in debt was concentrated among those farmers who were financing new purchases of land or equipment. Because farmers had strong equity, rising incomes, and increasing collateral values during the boom years, they had little trouble getting loans and few farm loans were adversely classified by lenders. Given strong farm finances, lenders expected to recover both the balance due and all foreclosure costs in the event of a default (Peoples et al., 1992).

The Bust. By the end of 1970's, concern was rising about declining farm liquidity and exposure to cash flow or interest rate shocks. This vulnerability is illustrated by the increase in interest and principal payments from less than one-sixth (16 percent) of gross cash income in the early 1970's to almost one-fourth (24 percent) of gross cash income by 1980. Farmers, lenders, and economists were slow to realize the extent of needed adjustments, with many arguing that the contraction would be short and would involve shifting income from asset accumulation to debt service, while asset values remained sound.

By the early 1980's, many of the factors that spurred the boom were reversing: export demand and commodity prices fell, while many input prices, interest rates, and the value of the dollar rose, making U.S. agricultural exports more expensive for foreign customers. The nature of the boom made U.S. agriculture vulnerable to a downturn: many farmers who had bought land or made other long-term investments--especially those who used debt financing--now had difficulty meeting their other financial obligations or even making a living. Farmers had responded strongly

to the perceived profit opportunities from increased production by bringing more land under cultivation and by investing in productivity increasing technologies. These investments led to large increases in acres planted and in per acre yields.

Government policies during the 1970's years amplified the supply response. Many governments, worried about foreign exchange or food security issues, increased their support for agricultural production. Federal commodity programs encouraged increased production and indirectly encouraged increased farm borrowing. By setting price floors, commodity programs reduced the risk associated with farm income, making farm income a more attractive repayment source for supporting debt. Support levels increased during the boom period when raising them involved no immediate increase in Federal budget expenditures, further supporting incomes and borrowing.

Following inflation-fighting policy decisions by the Federal Reserve Board, nominal interest rates rose sharply in 1980, peaked in 1981, and remained high for several years (fig. 7). These high interest rates made dollar denominated investments attractive and caused the foreign exchange value of the dollar to appreciate. The monetary tightening successfully curtailed the double digit inflation of the late seventies--inflation peaked in 1980 and fell below 2 percent by 1986. However, the high value of the dollar and high price floors on program commodities hurt the international competitiveness of U.S. agriculture and pressured farm incomes. The fall in real farm income and increase in real interest rates reversed the economic environment that had made debt financed investment in nonfinancial assets like farmland attractive, delivering a double whammy to heavily indebted farmers. Because the value of capital assets is directly related to the cash flows they generate and inversely related to interest rates, falling incomes and rising rates pressured farm asset values, which fell dramatically from 1981 through 1986.

Stress among Lenders

An important factor in the agricultural boom and bust was the behavior of agricultural lenders and their regulators. This behavior arguably accentuated the boom and aggravated the decline. According to the Federal Deposit Insurance Corporation (FDIC) most of the bank failures in the 1980's, a decade that saw more than any since the 1930's, were precipitated by four regional and sectoral recessions, including the one in agriculture (Federal Deposit Insurance Corporation, 1997). Banks were vulnerable to these recessions because they tended to serve relatively narrow geographic markets, but not all regional recessions caused failures. Generally, failures were associated with recessions in sectors that had experienced a fairly sustained expansion and had grown faster than the national economy. Agriculture was such a sector. Credit helped fuel the boom, but when the down cycle hit, some borrowers inevitably defaulted, weakening lenders. In contrast, recessions that were preceded by slow growth (such as in the rust belt), did not lead to many failures. Recessions that caused problems for lenders were similar in that each followed a period of rapid expansion, speculative activity (usually supported by expert opinions) that contributed to the run-up in asset values, and wide swings in real estate activity that contributed to the severity of downturns.

Lenders who found themselves in trouble had generally not been in a seriously weak condition in the years preceding the recessions. Lenders who failed often assumed greater risks than the

survivors, as measured by ratios of total loans and non-residential real estate loans to total assets. But only a small fraction of lenders with high risk exposures failed. Mitigating factors included strong equity and reserve positions, more favorable risk/return tradeoffs, superior lending and risk management skills, and proactive changes in policies regarding risk before losses became severe. Lenders that relaxed credit standards, entered markets where management lacked expertise, made large loans to single borrowers, or whose loan growth strained their internal control systems or back-office operations were most likely to fail. These factors were as much associated with distress among Farm Credit System lenders as they were with distress among commercial banks (Collender and Erickson, 1996).

The greater a lender's exposure to agriculture, the more trouble defaulting farm loans caused. Life insurance companies and large banks were least affected because of the relatively small share of their assets related to agriculture. Even many rural banks were adequately diversified: while 328 of 5,000 agricultural banks existing in 1981 failed in next 10 years, on average, return on equity for agricultural banks never fell below 5 percent and capital-to-asset ratios improved over the decade, even though they were already higher, on average, than at other banks (Peoples et al., 1992). Farm Credit System (FCS) lenders faced greater challenges because their loan portfolios were not diversified either by geography or by industry, and because of organizational and operating inefficiencies (Collender and Erickson, 1996).

The roots of the banking, thrift, and FCS crises were in the 1970's like those of the agricultural crisis. Increased instability in banking, as in agriculture, arose from the change in the exchange rate regime, rising inflation, volatile nominal interest rates, and anti-inflationary Federal Reserve Board monetary policies. And as in agriculture, there were few obvious signs of trouble for lenders in 1980. At small banks (those with less than \$100 million in assets) and FCS institutions, returns on assets and returns on equity were good, equity-to-asset ratios were improving, and loan charge-offs were low.

Parallel of Current Conditions to Early 1980's Limited

Some experiences of the past few years are astonishingly similar to the agricultural cycle of the 1970's and 1980's, while other aspects are very different. The similarities start with the nature of the more recent up-cycle. It followed the earlier pattern of rising agricultural exports during a period of tight stocks due to production controls and unusually bad weather in many growing areas worldwide. This combination led to high prices and optimism about future income from farming which, along with falling interest rates, supported farmland price increases. Recent increases in farm indebtedness add to the sense of *deja vu*. The beginning of the down-cycle has further parallels: policies that imposed supply controls on agricultural production have been relaxed, foreign demand has diminished in the face of financial crises that started in Asia, the dollar has appreciated relative to other currencies, and the carryover stocks of grains and oilseeds are increasing.

Despite the similarities, many factors are substantially different. In contrast to the early 1980's, the farm sector and its lenders are much less vulnerable to economic instability, and the domestic economic environment is much more stable. Farmers and farm lenders have used leverage more

conservatively in the last few years than they did in the 1970's. Off-farm income has been an important alternative source of farm repayment capacity for many years (Harrington, et al., pp. 49-54). Because overall economic growth has remained strong and unemployment in most parts of the country is low, off-farm opportunities are better in many parts of the country than during the years of stagflation and recession of the late 1970's and early 1980's.

While indicators of farm sector financial strength have deteriorated, the current situation differs from that of the early 1980's in a very important way. The monetary tightening by the Federal Reserve Board and the vulnerability of farmers and lenders to interest rate changes were defining characteristics of the 1980's crises. While interest payments and principal payments consumed 22 percent of gross cash income in 1979 rising to 28 percent by 1983, they currently consume only 14 percent. And, while low commodity prices and farm incomes create concerns about loan repayment ability, low nominal interest rates have continued to support asset values, including farmland, rather than pressuring them. The farm sector and farm lenders are much less vulnerable to increases in nominal interest rates, and because inflation is relatively low, any such increases are likely to be small compared with those of the 1980's.

Both the duration and amplitude of the recent up-cycle are compressed compared with that of the 1970's. Nominal net farm income rose 30 percent in 1972 and 77 percent in 1973 after a long period of stability (fig. 10). Over the next 5 years real net farm income averaged 16 percent higher than during the five year period before the 1972 increase. In 1996, net farm income rose 48 percent from 1995, but 24 percent over the average of the previous 5 years, and this increase is not expected to be sustained for even a few years. Growth of real debt and growth in land values, while supported by a similar combination of factors, have not compared in magnitude (figs. 5 and 8) to that of the 1970's. Much less of the recent increase in farm assets has been debt financed. From 1990 to 1998 nominal farm assets increased 34 percent, while nominal farm debt has increased 23 percent. In contrast, debt increased 4 percent faster than assets from 1972 to 1979 and 15 percent faster from 1972 through 1981.

Advice from financial experts has also been more temperate in the 1990's than it was in the 1970's. Both farm economists and financial regulators have consistently warned that liquidity from "Freedom to Farm" payments would support higher land prices initially, but had potential to fall as these front-end loaded payments tapered off. In contrast, experts in the 1970's and early 1980's encouraged farmers to expand production and increase debt loads.

Farm lenders as a group are less vulnerable to downturns in the sector than they were in the 1980's. Consolidation and financial innovations (securitization, third party guarantees, options, and swaps) have enabled many lenders to reduce their risk exposure to local economic conditions and interest rates changes. Lenders are also subject to closer scrutiny now from their Federal regulators. Regulatory changes, including risk-based capital standards, risk-based insurance premiums, and prompt corrective action, increase the costs to lenders of allowing credit quality in their loan portfolios to deteriorate. Many lenders have higher capital ratios, better quality capital, and better internal controls than during the 1970's and 1980's.

While Current Conditions Do Not Match Those of the 1980's, Further Deterioration Is Possible

Many of the events and conditions supporting recent gains in farm income and asset values parallel events and conditions that occurred in the boom years of the 1970's. Also, many of the conditions that led to the dramatic fall in many commodity prices during 1998 are similar to those that produced agriculture's contraction in the 1980's. Nonetheless, important differences exist that point to a sector better able to withstand adversity and less likely to be as dramatically tested. Greater domestic economic stability, a less pronounced expansion, and more conservative use of leverage by farmers and their lenders all should reduce the magnitude of any contraction.

That said, two other observations bear further discussion: First, individual experience varies more than sectoral averages, and many farmers and farm lenders will certainly face financial stress and difficult decisions. Second, a number of factors could aggravate the current downturn. For example, some lucrative and traditional off-farm employment opportunities may disappear, especially in energy producing States. Changes in government policies could strengthen the dollar or encourage greater agricultural production. Favorable weather here or abroad could increase price pressure on major commodities. Continued demand shocks in food importing countries or weakening of currencies of other agricultural exporters like Canada, Australia, and Brazil could further erode agricultural exports. And, changes among agricultural lenders and their regulators could affect lenders' willingness to lend to creditworthy farmers during a contraction.

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Figure 1

Index of Real Prices Received, 1983=100

Index

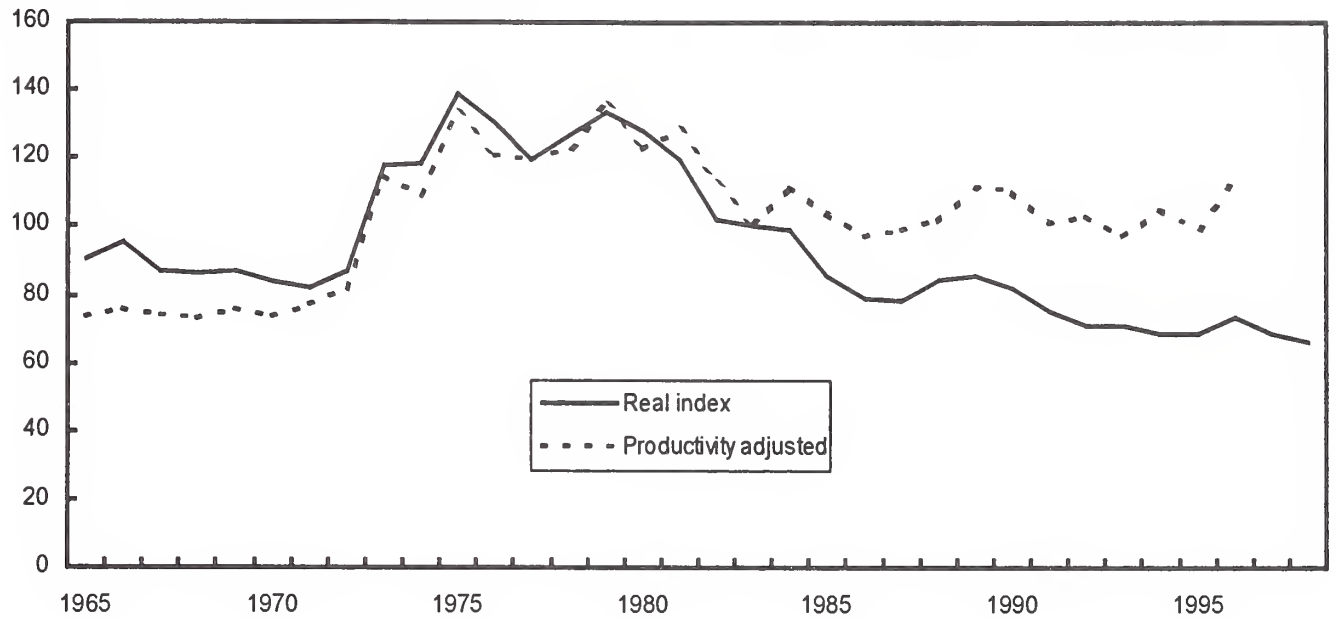


Figure 2

Real net farm income and direct government payments

\$ billion

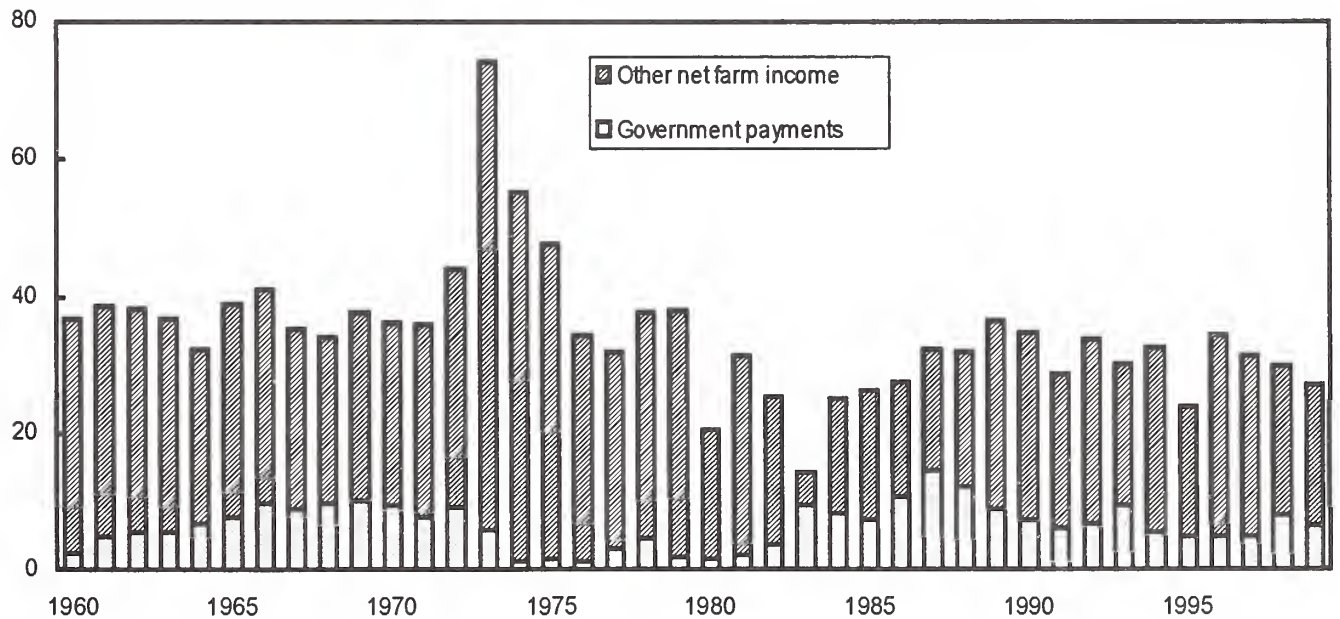


Figure 3

Return on assets in farming, 1960-1999

Percent

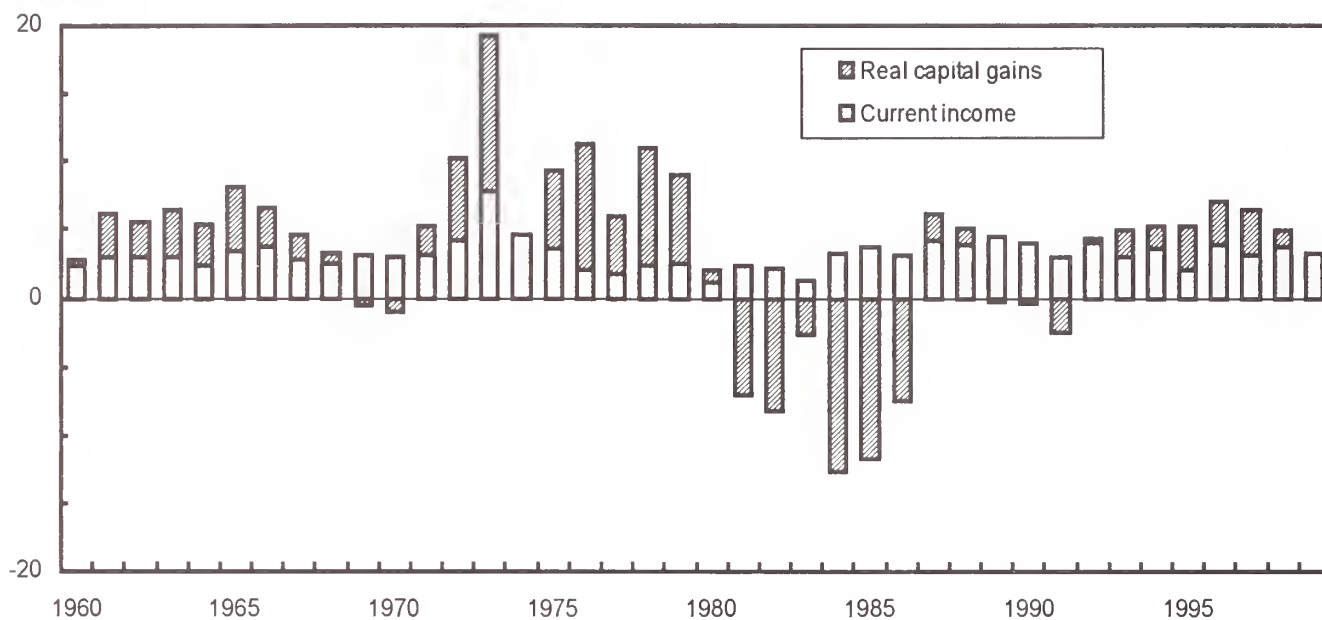


Figure 4

Real trade weighted value of the U.S. Dollar, 1973-1998

Dollars

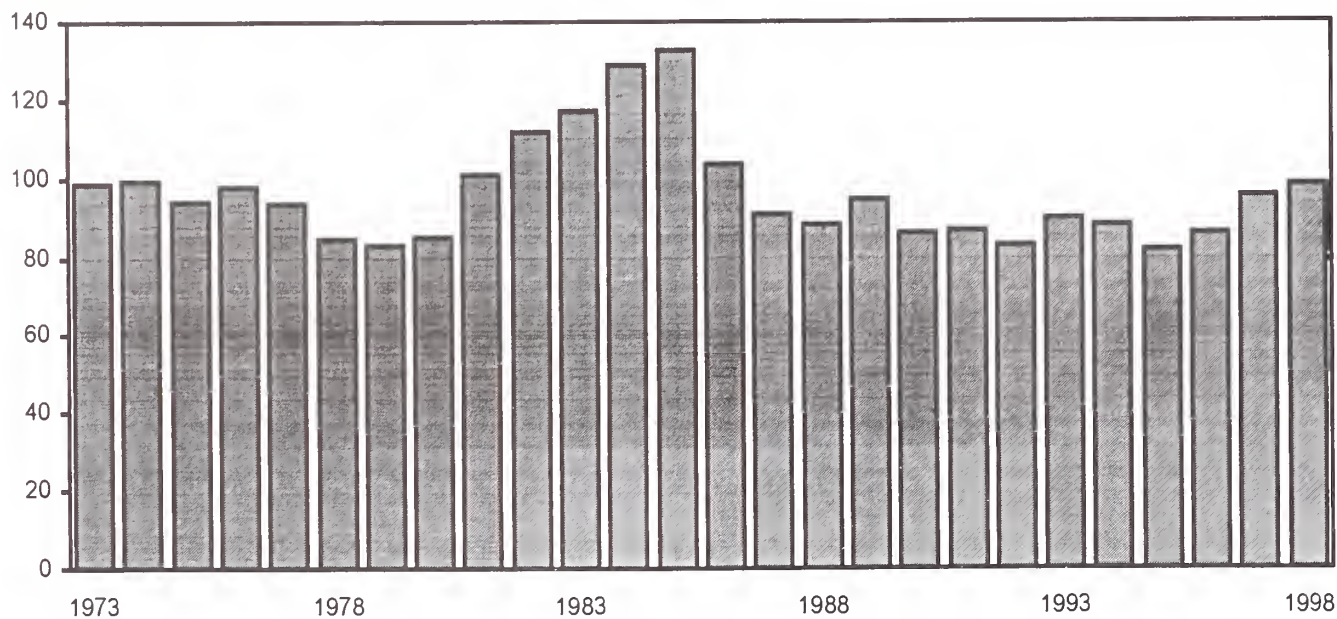


Figure 5

Real agricultural exports, 1960-1999

\$ billion

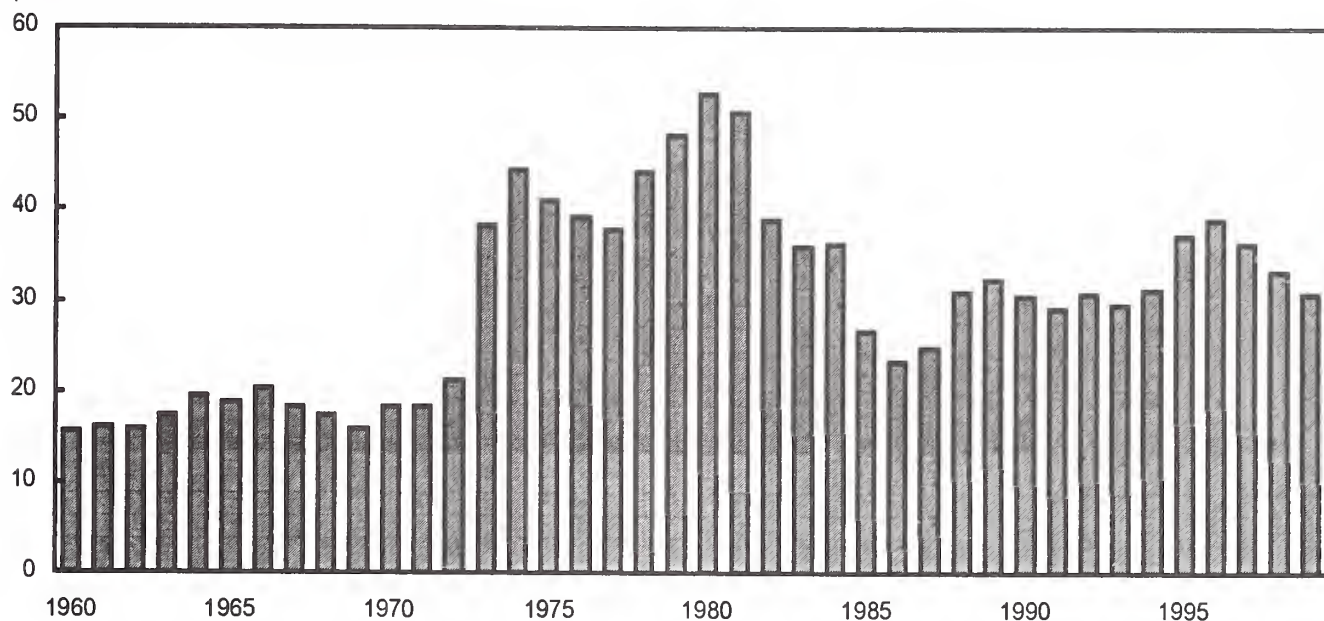


Figure 6

Nominal and Real Farm Debt, 1960-1998

\$ billion

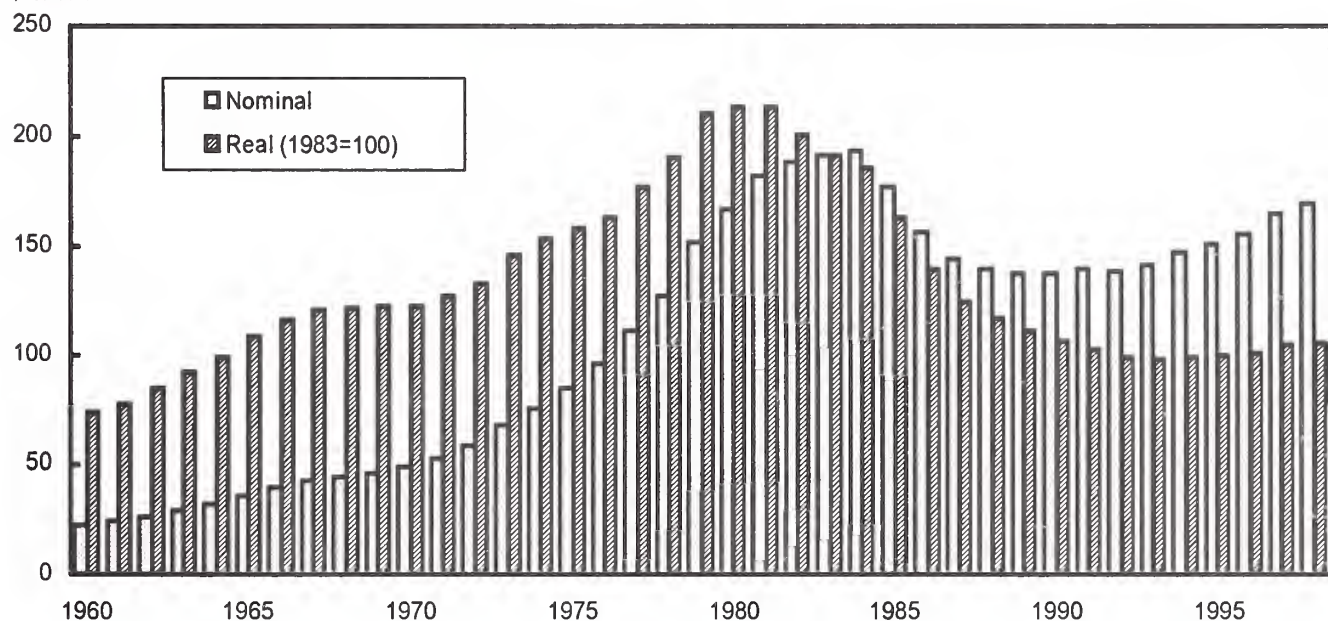


Figure 7

Real average agricultural interest rates, 1960-1997

\$ billion

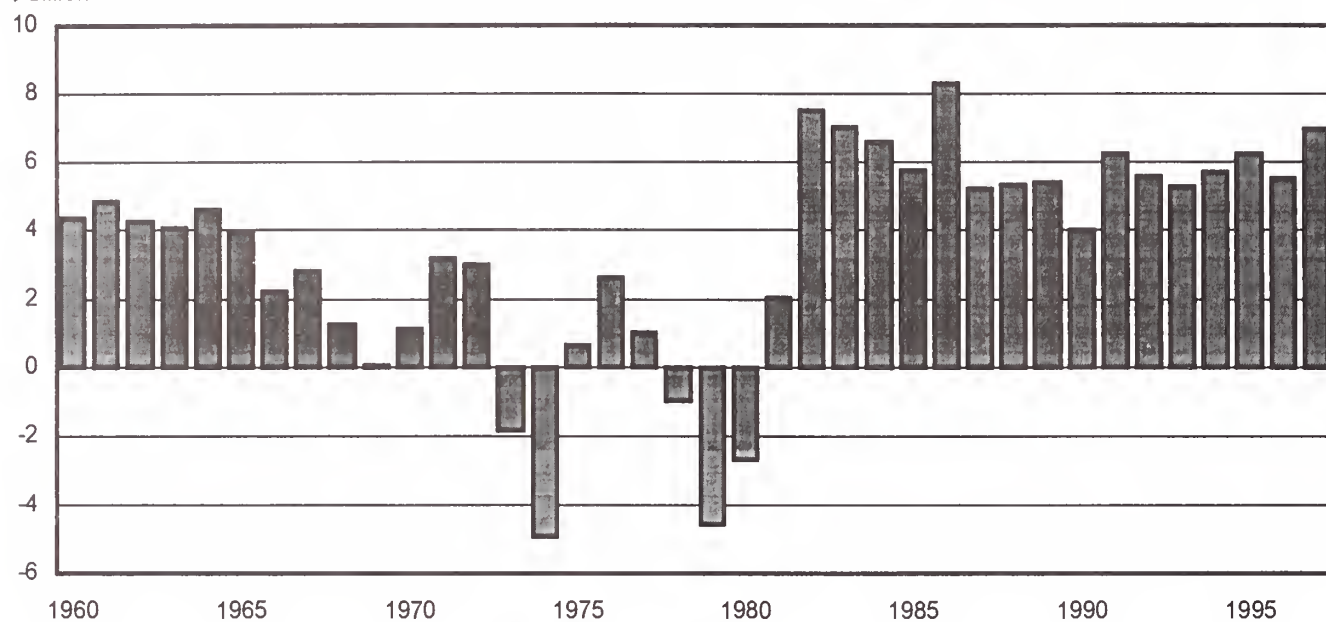


Figure 8

Real and nominal farmland values, 1960-1998

\$ billion

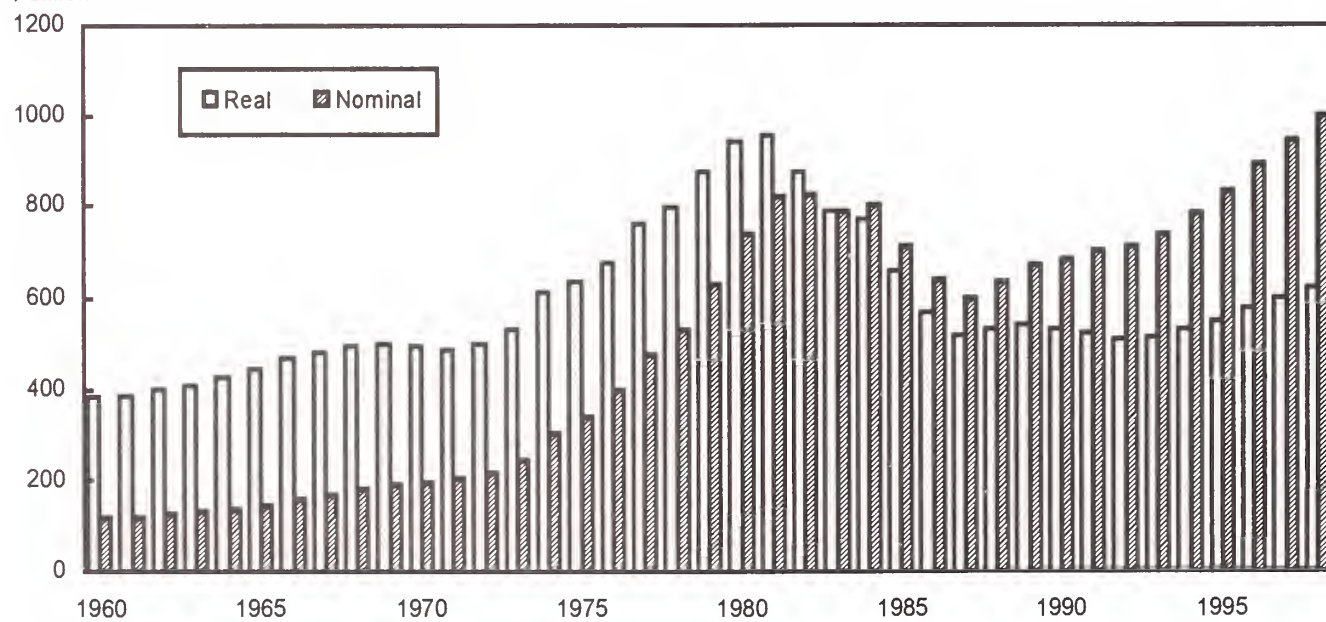


Figure 9

Real Gross Investment in Farm Machinery and Equipment, 1983=100

\$ billion

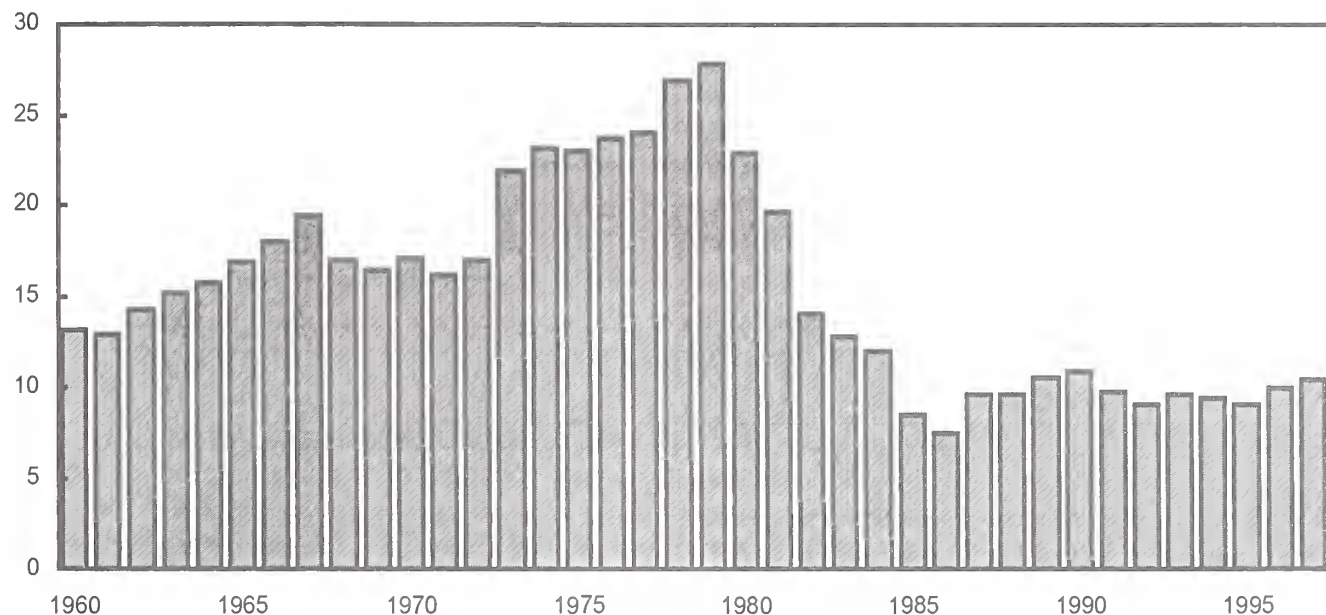
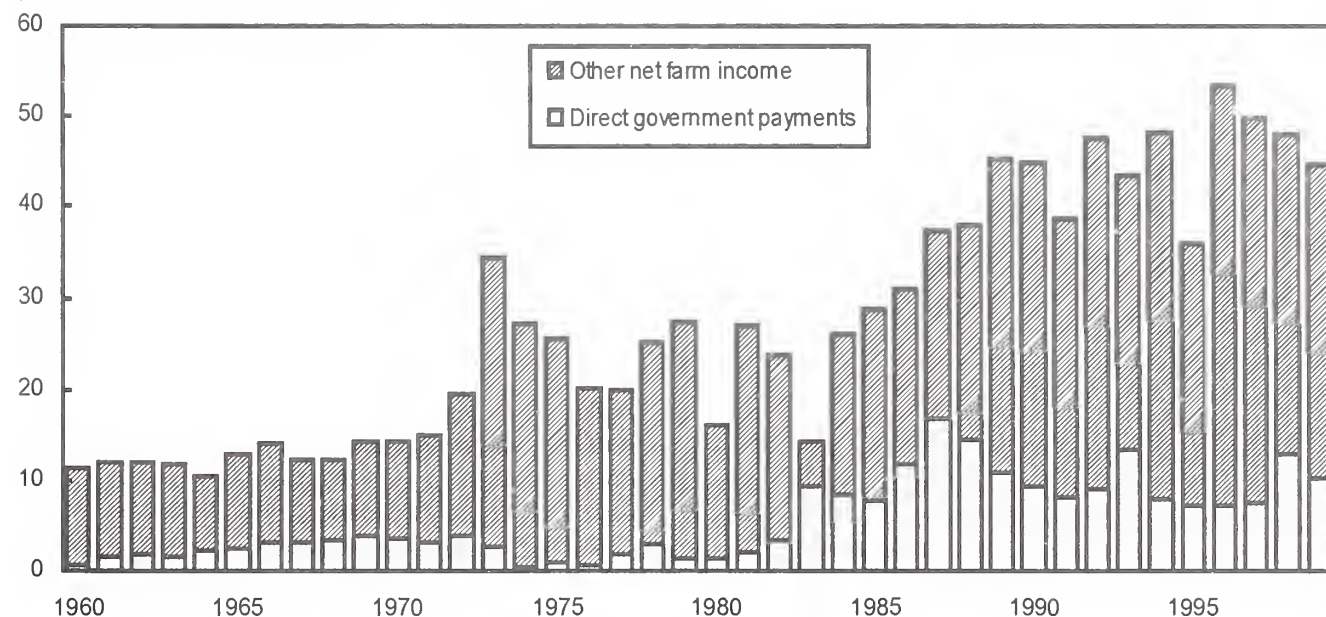


Figure 10

Nominal net farm income and direct government payments

\$ billion



MARKET PERFORMANCE AND PRICE DISCOVERY ISSUES IN AN INDUSTRIALIZED AGRICULTURE

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The U.S. agricultural industry is in the midst of major structural change—changes in product characteristics, in worldwide production and consumption, in technology, in size of operation, in geographic location. And the pace of change is increasing. Production is changing from an industry dominated by family-based, small-scale, relatively independent firms to one of larger firms that are more tightly aligned across the production and distribution chain. The industry is becoming more industrialized, more specialized, more integrated and more managerially intense. Our purpose here is to first describe the industrialization process, to raise critical policy issues concerning the efficiency and effectiveness of agricultural markets, and to suggest some alternative policy responses to this dramatic restructuring of agriculture.

Industrialization of Agriculture

Industrialization of agriculture means the movement to larger scale production units, that use standardized technology/management and are linked to the processor by either formal or informal arrangements. Size and standardization are important characteristics in lowering production costs and in producing products that fit processor specifications and meet consumers' needs for specific product attributes, as well as food safety concerns. Smaller operations not associated with an industrialized system will have increasing difficulty gaining the economies of size and the access to technology required to be competitive, except perhaps in niche markets. Access to input and product markets will be especially critical.

For example, industrialized pork production is now the norm for most expanding firms in the industry. The manufacturing approach to pork production and distribution contributes to quality control as well as cost control. In many cases, this industrialized model of production and distribution will foster much larger scale firms; in 1988, approximately 5 percent of total pork production was concentrated in the hands of the 40 largest firms whereas, the 50 largest firms in 1999 are expected to produce approximately 50 percent of the total U.S. pork output (Freese). Technological advances combined with continued pressures to control assets and improve quality are expected to provide incentives for further industrialization of the industry.

There will be a number of ways in which industrialized food systems are organized and owned. These alternatives will likely include alliances of formerly independent companies, producer-owned cooperatives, and total vertical integration. Consolidation has and will occur in input supply companies (for example Monsanto acquisition Holden Seeds and DeKalb Genetics) and product procurement and processing (for example Cargill's acquisition of Continental Grain).

Systems will be formed by combining input industries, producers, processors, distributors, and even retailers. Firms will likely find it necessary to be part of a food system and to specialize their services and skills in a narrow function.

Industrialized agriculture is characterized by: 1) adoption of manufacturing processes in production as well as processing, 2) a systems or food supply chain approach to production and distribution, 3) negotiated coordination replacing market coordination of the system, 4) a more important role for information, knowledge and other soft assets (in contrast to hard assets of machinery, equipment, facilities) in reducing cost and increasing responsiveness, and 5) increasing consolidation at all levels raising issues of market power and control.

Market Policy Issues

This restructuring of agriculture raises a number of public policy issues relative to the effectiveness and efficiency of agricultural markets; we will only discuss three of them here.

Competitiveness of product and input markets

How will the structural changes that are occurring impact the competitiveness of and strategic positioning in the agricultural product and input markets? The development of tighter linkages and formation of food supply chains may have an impact on market access in both the input and product markets. And the development of larger scale firms could result in sufficient concentration to enable these firms to exercise oligopolistic if not monopoly power in negotiating prices or terms of trade. How will the structural changes in agriculture impact access to product markets? What are the implications for producers, consumers and competitive markets? How will the structural changes impact access to input markets? More specifically is concentration in the poultry, pork and beef industries and their associated product and input markets sufficiently high to warrant antitrust intervention? What are the consequences of such intervention (or of not intervening) in terms of incentives to innovate, efficiency, externalities and distribution of returns and risks?

Some would argue that the basic nature of competition has changed in recent years, and in particular the definition of the market is vastly different today in terms of the product/service domain, the geographic domain and the definition of a firm as an entity. With respect to the product domain, particularly in the service market, the increasing importance of information as a resource and the ability to use the same customer information in a wide array of service industries (for example retailing and financial services) has resulted in the integration of many service industries. World-wide sourcing and selling has changed the geographic boundaries of markets from regional or national to global. And some are suggesting that as more industries develop increasingly more tightly aligned supply or value chains from raw material supplier to end-user, competition in the future will not be between firms but among chains.

Supply chains and market performance

The industrialization of agriculture is likely to significantly impact the effectiveness of markets in providing accurate messages to consumers and suppliers in the food chain concerning prices, quantities, and qualities of products and attributes. With the formation of more tightly aligned food supply chains, it can be argued that messaging is much more precise, timely, and generally more accurate for participants in the chain than might be provided by market forms of coordination. Critical assumptions of this argument are that product attributes are accurately measurable, and that consumer demand for attributes is predictable. A recent study of this phenomenon in the pork industry provides support for this hypothesis, but much additional work in this and other industries is needed (Cloutier).

What about the risk faced by those who are not part of the tightly aligned supply chain — i.e., are not qualified suppliers? Is there more volatility in the prices they receive because of thin markets? Do they have access to a market or are they closed out because only qualified suppliers can participate? Because of the thinness of these markets, are they not only subject to more volatility, but also to more potential for manipulation? Do the prices and other information conveyed by these thin markets provide accurate messages to consumers and suppliers concerning quantities, qualities, cost, and value? If the commodity markets become the “salvage” market for products that do not meet specifications in the qualified supplier system, do they then become frequently oversupplied with the prospects of more downside price volatility than upside potential? If those who cannot participate in the qualified supplier systems can only sell in commodity markets and these markets take on the characteristics of a salvage market, do the participants incur more of the risk of more tightly aligned chains that are part of the industrialization without the potential of receiving any of the rewards? If markets become sufficiently concentrated that only one or possibly two qualified supplier arrangements are available in a particular locale, how can participants be assured that their share of the risk and rewards of participation are equitable? The fundamental issues of access to information, transaction transparency, equitable sharing of risk and rewards by nonparticipants as well as participants in tightly aligned supply chains, and the risk associated with market access are all important market risk and performance issues that are part of the industrialization of agriculture.

Privatization of intellectual property and innovation

What role does intellectual property right law play in encouraging more tightly aligned supply chains and monopoly or oligopoly power? How does the privatization of research and development and information markets impact the rate of innovation? The distribution of the benefits of innovations? Access to markets? The competitive rivalry in markets? How important are property rights and rent seeking behavior in encouraging firm growth? In encouraging new innovation? In stimulating economic growth?

With the heightened importance of information as a source of strategic competitive advantage, the potential increases for information-based competition between production/marketing systems. Such competition is particularly likely if information within a more tightly aligned supply chain is superior to that of a less tightly aligned, market coordinated

production/distribution system. Similarly the opportunity to protect information in the form of genetic manipulation or biotechnology with patent or copyright law offers another platform for information-based competition. In such settings, the issue of market power exploitation within a chain or in competitive positioning relative to other chains is likely to arise.

The role of the public sector in making information a public good that is broadly available to all potential users, and the more general issue of intellectual property rights, become critical with the formation of more tightly aligned supply chains in agriculture. The intellectual property rights debate has historically focused more on research and development and new innovations protectable under patent or copyright law. Particularly in production agriculture, the public sector has played a major role in the research and development activity, and thus provided broad access to new technology and ideas. In this context, part of the public purpose was developing and disseminating new ideas in a broad fashion so that a wide spectrum of users benefitted. This received public support when agricultural production included many millions of small family managed units. What has changed the rationale for public support of agricultural technology? If concentration of input or product sub-sectors of agriculture now allows the recapture of development expenditure and attractive profits that were not possible under the old structure of many truly independent small farm units, does this not now raise new questions about the nature of these markets and public involvement.

As more and more of the research and development effort, and thus new innovations, come from private sector firms rather than the public sector, and as more of the information dissemination system becomes privatized, individual firms have more potential to capture value at the expense of end-users. They have the potential to restrict access to new ideas and information to particular users, thus favoring some producers and excluding others from the ideas, technology or information necessary for them to be competitive. The concepts of intellectual property rights, including patent and copyright law as applied to agriculture, were developed in an era of domestic markets and national firms; a relatively large public sector research, development and information dissemination system; and a limited role of information as a critical resource. These concepts should be reevaluated in the current context of global markets and multi-national business firms; the shrinking role of the public sector in research, development and disseminating information; and the increasing importance of information compared to other resources as a source of strategic competitive advantage.

Regulation of Structure

What is the appropriate public policy response to the profound structural changes in the industry? Regulation of structure and the market consequences of these change in structure is a very contentious public policy issue. The dimensions of this issue are far-reaching and complex, including the implementation of anti-trust policy to an increasingly concentrated and integrated food industry; the regulation of the ownership of farm land, livestock facilities, and other resources used in production agriculture; state and/or federal legislation and regulations on the appropriate form of business organization (corporate farming, contract production, limited partnerships, etc.) and who are appropriate participants in such business arrangements; contract protection provisions which specify the rules and the protections available to various contracting

parties; and even local county and township zoning regulations which influence the ability of individual producers to construct new livestock facilities or implement various farming practices.

Concerns about market power and concentration in the agricultural industry might result in increased scrutiny under anti-trust laws and regulations, although the current posture of limited enforcement under these rules makes that unlikely. More likely, state legislators, concerned about the future of family farmers and threat of corporate farming, may constrain forms of coordination arrangements such as contract farming or integrated ownership of various stages of agricultural production. Note, however, that such limitations are more likely to influence the geographic location of various activities in the food production and distribution chain, rather than the method of coordination, unless such legislation is national in scope. Iowa's prohibitions merely encourage activity elsewhere.

Production sector structure questions

In attempting to regulate the structure of agriculture, particularly as it relates to the production sector, some critical questions should be answered. Some examples are:

1. Are there ways to protect market access for independent producers, other than restricting vertical integration or vertical linkages? One way might be to require processors to purchase some minimum percentage of their daily kill on the cash-spot market.
2. Is the important question whether the alternatives available to a producer are cash-spot markets or contract (or other vertical alliance) alternatives, or is it the number of alternatives available and the market power of each? In other words, is there really any fundamental difference between a producer choosing among two or three packers to sell to, or signing a contract with one of two or three contractors? One obvious difference is that the choice of packers is made every week or two, while the choice of contractors is only made once a year or once every few years, depending on the length of the contract.
3. Is it more desirable for cooperatives to engage in contracting with producers or to vertically integrate than other corporations or large privately held firms? Who should have the potential benefit of market power and monopoly profits. One apparent concern with allowing existing cooperatives to contract or integrate is that they might use equity capital built up from independent producer members' contributions to help other contractee producers start or expand, such that they compete with the independents. Would it be more desirable to encourage new cooperatives to form, which would take advantage of economies of size, but using only contractee capital? If there are efficiency advantages of larger operations, would it be more desirable for groups of farmers to own and operate the operations than others? Do farmers "wear whiter hats" than others, in some sense?
4. Many producers are concerned about risk, and contract production and other strategic alliances are methods to manage risk. What other strategies might producers adopt to manage risk? Marketing contracts, futures and options trading, and contracts that simply guarantee access to a slaughter facility are possibilities.

These are questions that are being asked, and they are important. However, it may be more appropriate to focus now on the broader policy issue of balancing public and private interests under structural change.

Expanding the policy options

Several broad policy options are available to deal with the structural change that is occurring in the agricultural industry. One option would be to do nothing — to let the changes take their course within the state and federal laws already in existence. A second option is, as suggested earlier, to prohibit various types of activity that are deemed socially undesirable. This option precludes institutional innovations that may have significant economic and social costs and benefits in favor of the status quo. Such a policy might not only be difficult to implement, it might eliminate opportunities to develop a more efficient and responsive food production and distribution system.

A third option is to impose new “rules of the game” that would level the “playing field” or maybe even give some participants an advantage; or define the relative “rights” of various parties in contracting, ownership and other negotiated linkages, where the potential for unfair treatment or exploitation is a concern. Prompt payment and custodial account provisions under current legislation for livestock buyers and grain merchandisers are examples. The essence of this policy approach is to develop an institutional structure surrounding vertical supply chains (not unlike the institutional structure surrounding markets) that responds to the public policy concerns. Such a structure might include open access to information on prices and terms of trade of all transactions whether they be within a vertically aligned chain or not. It might include redefining anti-trust legislation to acknowledge concerns about market power related to position in a vertical chain as well as market concentration and size. It might include provisions to minimize opportunistic behavior and exploitation by mandating compensation if, for example, contractual obligations in a vertical chain are not fulfilled. Another policy response would be to alter the power potential in negotiation between producers and others in vertical chains by increasing producer bargaining rights. And new arrangements and institutional structures for more equitable sharing of risk and rewards in vertical alliances as an alternative to fixed price contracts might be mandated or encouraged including various forms of profit and loss sharing arrangements. Providing educational programs, legal advice and mediation or negotiation services to help parties evaluate and resolve contractual or other business linkage conflicts might also be appropriate. The fundamental principle here is to develop a new institutional structure to surround vertical systems of economic activity to eliminate the potential of power or exploitation so as to accomplish the same goal as the current institutional structure is to accomplish in a market environment. Putting such a new institutional structure in place may only occur if those gaining power under structural change see a less attractive alternative likely.

A Final Comment

The structural changes that will impact agriculture over the next decade will be profound. The economic benefits of the dual dimensions of industrialization of agriculture — implementation of a manufacturing approach to the food and industrial product production and distribution chain,

and negotiated coordination among the stages in that chain — are expected to dominate the economic and social cost, resulting in a rapid movement of the livestock sectors (particularly pork) followed chronologically by the grain sectors to an industrial model of production and distribution. The implications of this industrialization process for agricultural markets and market policy, and agricultural policy in general, are profound. In essence, the underlying policy questions can be stated simply: (1) should public policy limit or shape the industrialization of agriculture so that the end result is more compatible with what is perceived by some to be a more acceptable structure of the industry; and (2) if industrialization of the agricultural sector does occur, what are the implications for appropriate public policy concerning market and non-market mechanisms that will be used to coordinate the food production and distribution system.

**“HOME MADE” – THE PARADIGMS AND PARADOXES OF CHANGING
CONSUMER PREFERENCES:
IMPLICATIONS FOR DIRECT MARKETING**

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Changes in agricultural policies, decreases in the competitive structure of agricultural markets and the increasing dominance of non-farm activities in the food chain, have put smaller and moderate-scale agricultural operations at risk. Large operations can, because of their volume of sales, earn respectable incomes. However, smaller operations that have to rely on commodity production will, in the new policy and economic environment, face a daunting challenge. That challenge is reflected in the record low percentage of the retail cost of various commodities that accrue to farmers. As shown in Table 1, the farm share of retail prices for various commodity groups range from approximately 7 percent in the case of cereals and baked goods to 46 percent for eggs. The average farm share is 18-21 percent for fresh and processed fruits and vegetables.

Table 1. Farm value as a percentage of retail price for domestically produced foods, 1987 and 1997

Items	1987	1997
Livestock products:	Percent	
Meats	47	37
Dairy	42	32
Poultry	45	41
Eggs	54	46
Crop Products:		
Cereal and bakery	8	7
Fresh fruits	26	18
Fresh vegetables	31	18
Processed fruits and vegetables	24	19
Fats and oils	18	21

Source USDA, Agriculture Fact Book, 1998

Farmers respond to the income challenge in a number of ways: some expand their operations if conditions are favorable to that option, others choose low cost production systems, still others cease farming, while some choose to alter their product lines to focus on specialty crops, niche markets and direct marketing. Direct marketing is increasing opportunities for small and moderate-scale producers and may offer viable options for sustaining family farming in the United States. But direct marketing is not a panacea for all farms of this type. Opportunities and constraints will vary according to the location of the farm, the age, skills, experience and entrepreneurial abilities of the operator, access to information, technologies and markets. Where the factors are conducive, direct marketing, in particular direct marketing to consumers, offer

advantages of integrating farm and non-farm activities and incorporating the revenues typically attributed to off farm agents into the farm revenue stream. A cursory review of empirical evidence related to consumer preferences for direct markets helps to provide a map as to prospects for these marketing options. For some options the data is sketchy or anecdotal. But a number of studies can be drawn on to indicate the prospects for direct markets.

Prospects for Direct Markets – The Theory and the Evidence

Farmers utilize a variety of direct marketing options including -- roadside and farm stands, farmers markets, U-Pick, consumer subscription or CSA's, mail order, Internet, and others. We will only touch on a few of these options here.

We know that demographic and psychographic factors have reconstructed and is reconstructing the marketplace in multiple ways, some favorable and some inimical to farm direct marketing. The high levels of urbanization remove consumers spatially from producers and enhance prospects for indirect sales such as those facilitated by wholesalers and retailers. The high and increasing proportion of adults in the workforce favor systems that economize on search time and time spent on shopping. It also favors consumption away from home and use of more convenience – prepared foods. Needless to say, these do not immediately favor farm direct sales. It favors larger supermarkets and food processing companies, and is reflected in the small and declining share of the farm share in retail food expenditures. (See Table 1.)

On the other hand, consumer surveys have, for the past two decades, shown changes in consumer interest in achieving more healthy lifestyles including consumption of healthier diets. USDA, health professionals and popular publications have been advocating increased consumption of fresh fruits and vegetables, and more “natural” products, less fat, less sugar and salt, and more complex carbohydrates. Additionally, some consumers have become more demanding of improved flavor in foods. These latter psychographic factors are more favorable to direct markets. Moreover, an increasing proportion of consumers evidence a concern for the “family farm” and the preservation of agriculture and open space. On an *a priori* basis, one would expect, then, that the prospects for direct markets in exploiting these consumer niches are quite positive. To what extent is this supported by the evidence.

Data on Consumer Patterns and Preferences

In a study of “Ohio Consumer Opinions of Roadside Markets and Farmers’ Markets”, Rhodus et al. (1994) found that, among other things:

- over 88% of Ohio households believe they receive higher quality produce directly from the farmer
- 90% of the respondents indicate a preference “to buy their fresh fruits and vegetables **directly from the farmer**, whenever possible;
- 55% of Ohio’s households shopped at a roadside market in the August 1992 to August 1993 period; 29 percent had shopped at a farmers’ market, and 40% of these had shopped at this venue four or more times.
- respondents perceived produce quality, produce freshness, and produce prices to be better at roadside and farmers’ markets than at supermarkets, but supermarkets were perceived

superior in terms of convenient location to home, variety of produce, consistent supply, store promotions, and convenient location to work.

- For those respondents who did not shop at roadside markets, reasons included – not convenient/far away (45%), takes too much time (12%), not open the hours I want (4%), prefer supermarkets (18%), raise my own vegetables (18%) and too expensive (4%).
- Farmers' markets were perceived as not convenient by 60% of the households surveyed.
- 55% of households would shop at roadside markets, and 58 percent would shop at farmers' markets if they were conveniently located.

Another study of a Maine farmers' market clientele provides further support for the positive view of the prospects for direct markets. Kezis et al. (1999), in their study of the Orono Farmers' market found that quality, support for local farmers, and atmosphere were very significant to patrons. (Table 2.)

Table 2. Most Important Reasons for Shopping at the Orono Farmers' Market (percent distributions*).

<u>Reason</u>	<u>Percent</u>
Quality of the products	72.5
Support local farmers	59.6
Friendly atmosphere	38.2
Health & food safety concerns	29.8
Convenience	13.5
Good price	10.7
Variety	8.4
Good service	5.0
<u>Consistency</u>	<u>2.2</u>

*N=178: excludes those who were visiting the market for the first time

Consumers also indicated a willingness to pay more for produce at the farmers market than for similar produce at a supermarket, with 72 percent indicating a willingness to pay an average of 17 percent more for farmers' market produce. And nearly half of weekly patrons reported spending upwards of \$10.00 per visit.

Data from an as yet unpublished California survey conducted in San Diego County, California, in 1998, confirm the trend toward enhanced consumer preferences for direct markets. Table 3 shows the relative familiarity with and use of alternative direct marketing methods from a survey of 436 consumers. With respect to the factors that favor their patronage of farmers' markets the responses ranked in order of frequencies are as follows:

Table 3. Factors Favoring Patronage of Farmers' Market.

	Count	Percent
Freshness	399	92.0
Quality	379	87.0
Taste	339	76.0
Locally Grown/Produced	308	71.0
Help local farmers	259	59.0
Nutritional value	211	48.0
Atmosphere	201	46.0
Best value for money	177	41.0
Convenience	164	38.0
Price	157	36.0
Know grower	62	14.0
<u>Others</u>	<u>34</u>	<u>8.0</u>

(a) Consumers could chose multiple responses

(b) Rounded to nearest percent

Source: Lobo et al. Unpublished study of San Diego Farmers' Markets: Consumer Preferences and Shopping Patterns.

The top four attributes were identified in the survey as Quality, Freshness. Taste, and Help Local Farmers/Locally Grown. Approximately equal proportions of the sample – about a third perceived prices to be higher or lower than supermarket prices. However, 73 percent perceived quality to be superior to supermarket produce, a surprising finding given the proximity of supermarkets in California to production areas. Two thirds of the respondents would prefer items to have a San Diego grown label and a half indicated a willingness to pay more for San Diego grown products.

Table 4 presents data from the 1997 Annual Report of the Southland Farmers Market Associates:

Table 4. Average Farmer Gross Sales Per Market Day, 1997

Southland Markets

Santa Monica Wednesday	\$894
Westwood	\$792
Santa Monica Saturday	\$705
Santa Monica Pico	\$620
Calabass	\$567
Beverly Hills	\$560
Encino	\$446
West Hollywood	\$442
Gardena	\$408
Culver City	\$394
Ocean Beach	\$368
Redondo Beach	\$322
Adams & Vermont	\$304
Oxnard	\$292
San Dimas	\$287
Monrovia	\$254
Palmdale	\$174
San Gabriel	\$141
Average farmers' sales, all Southland Markets	\$438

As indicated, per farmer per market day sales ranged from a low of \$141 to a high of \$894 – with an average per market day sales of \$438. This is not an insignificant amount of revenue, particularly when considered in the context of farmers selling at more than one or even multiple markets.

Table 5 presents a summary of annual sales for the 19 markets in the Southland Farmers' Market Association for 1997. Annual sales ranged from a low of \$47,437 for partial year's sales for the San Gabriel market, to a high of \$3,599,629 for the Wednesday, Santa Monica market. It should be noted that the Southland markets are in the Los Angeles Basin.

Table 5. Gross Sales of Current Southland Markets – Five Year Comparison

	1993	1994	1995	1996	1997
Adams & Vermont	\$272,700	\$270,000	\$263,500	\$253,210	\$251,691
Beverly Hills	--	\$310,500 #	\$708,000	\$876,606	\$902,368
Calabasas	\$418,600 #	\$720,100	\$742,000	\$941,177	\$918,328
Culver City	--	--	\$406,300 #	\$498,356	\$559,894
Encino	--	\$185,100 #	\$355,500	\$567,607	\$695,638
Gardena	\$398,000	\$418,400	\$389,000	\$406,279	\$414,108
Monrovia	\$200,200	\$240,900	\$173,100	\$281,649	\$294,913
Ocean Beach	\$375,200	\$415,400	\$371,000	\$469,559	\$570,200
Oxnard	\$186,600	\$229,400	\$225,500	\$235,970	\$175,367
Palmdale	--	--	--	\$ 86,196	\$ 86,269
Pomona	\$345,500	\$315,600	\$313,500	\$270,985	\$241,620
Redondo Beach	\$511,700	\$487,800	\$440,000	\$415,503	\$404,179
San Dimas	\$347,100	\$284,700	\$268,500	\$258,544	\$254,601
San Gabriel	--	--	--	--	\$47,437 #
Santa Monica - West	\$3,896,500	\$3,485,100	\$3,535,000	\$3,723,703	\$3,599,629
Santa Monica - Sat	\$810,700	\$864,200	\$1,025,000	\$1,539,209	\$1,660,381
Santa Monica - Pico	\$794,600	\$1,051,700	\$1,060,000	\$1,444,766	\$1,427,210
West Hollywood	\$420,900	\$418,600	\$406,000	\$380,269	\$394,624
Westwood	--	\$522,745	\$845,000	\$1,482,883	\$1,613,032

NOTES # means partial year

Source: 1997 Annual Report - Southland Farmers Association, Los Angeles, California, 1998

Clearly, these operations go beyond the uninformed perception of farmers' markets as inconsequential 'mom and pop' operations. Many have emerged as serious marketing and economic institutions. And by no means do they appear to have exhausted their potential. Certainly feasibility analysis and planning, as well as progressive management will determine the outcomes of specific markets. The bottom line, however, is that consumer lifestyles and preferences are supportive of further development of farmers' markets as sites for exchange of values between consumers and producers.

Mail Order

The busy lifestyles of many middle income households and the appeal of foods and farm products for ceremonial purposes offers potential for utilizing mail-order and electronic commerce as marketing options for farmers. The business skills and marketing infrastructure needed to support mail order or electronic commerce are probably at least different, if not more complex than for roadside stands or farmers' markets. But some operations will be favorably endowed with these skills. Others can be developed. But there is clearly a potential market.

According to Consumer Reports (1996), in 1995, 6.4 million Americans ordered food by mail. Products sold included: nuts, fruits, preserves, cheeses, meats and fish, baked goods, and

confectionery. While, according to Consumer Reports, product quality and service was highly variable, consumers appeared willing to pay considerably more than supermarket prices for the convenience and “panache” of ordering through the mail. Since many of these items are sent as gifts to friends, business and personal acquaintances, consumers avoid the time to shop, package and ship the products. Moreover, value is added by virtue of the product having some added identity as provided by a label or some valued source of origin – like a family farm.

Table 6 shows some typical price differentials between mail order products and their supermarket equivalent:

Table 6. Prices: Mail Order vs. Supermarket Prices

Food	Mail order	Supermarket
Popcorn	\$31.90	\$10.61
approx. 3 1/2 gal.	Popcorn Factory	Wise
Mixed nuts	\$22.10	\$4.80
1 lb.	Swiss Colony	Planters
Cheddar	\$13.15	\$3.62
1 lb.	Sugarbush Farm	Cracker Barrel
Salmon	\$57.90	\$19.99
1 lb.	Pfaelzer Brothers	A&P deli

Source: “The Food is in the Mail”.

Consumers Reports, November 1996

As shown in Table 6, price differentials between mail order and supermarket prices for comparable products are typically substantial.

Paradoxes in Consumer Trends

A key paradox of evolving patterns of consumer preferences is that as disposable incomes increase in inverse proportion to discretionary time, preferences for “home made” products which either evoke comforting feelings of nostalgia or romantic images of home and hearth motivate much consumer spending. This explains why many large food processors and fabricators including Campbell’s Soup Company and many others go to great lengths in developing products and labels that convey this image of a romantic peasant society and cottage industry production. Not only is this true for foods, it extends to handicrafts such as quilts, Shaker furniture, hand loomed woolen sweaters, and the like. Hence, the nostalgia for “authentic” products offers niches for direct market, for fresh and value-added products from small and moderate scale farms. But producers will need to combine “authenticity” with up-to-date practices in regard to product safety, warranties, service and customer relations. Another paradox of consumer trends is the increased consumption of “fast food” and convenience foods by lower income consumers.

Conclusions and Implications

This paper suggests that there is still rich potential for improving the performance and prospects for family farming through direct marketing alternatives. These alternatives demand many more entrepreneurial skills and abilities than traditional marketing alternatives. Many of these skills can be transferred to farm entrepreneurs. They could also benefit from exposure to methods of conducting market research and accessing pertinent sources of consumer information. These include topics that can be addressed by USDA and its partners through applied research and education. Activities and new initiatives now being implemented by the Agricultural Marketing Service are justified by the potential pay off for family farmers.

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Agricultural Risk Management Tools for the Future

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FARMERS and DERIVATIVES

A SUCCESSFUL COMBINATION in the 21st CENTURY

A Presentation by Joseph B. Dial

Consultant

Managing the "Elecular Revolution"

INTRODUCTION

I am honored to be a speaker at the 1999 USDA Outlook Forum. My presence here today is actually a return engagement in as much as while I was a Commissioner at the Commodity Futures Trading Commission (CFTC) I had the good fortune to address the Forum in 1997. In my opinion this event, throughout its 75- year history, has always been one of the most prestigious conferences on current agricultural issues anywhere in the world.

The title of my presentation today is "Farmers and Derivatives - A Successful Combination in the 21st Century." I know a little something about farmers because I was actively engaged in agricultural production for nearly forty years. And for the last eight years I have been right in the middle of the use of derivatives, first as a Commissioner of CFTC and now as a consultant to foreign governments that want to permit the use of exchange-traded futures/options in their respective countries. So I would be the first to admit that derivatives are probably at the bottom of most farmers' list of business management tools. Why then, you might ask, do I think that in the 21st century farmers and derivatives are going to be a successful combination?

I am going to explain my rationale in five parts. First, I will provide a brief

description of a derivative. Second, I am going to talk about 20th century farmers and their attitude toward managing yield and price risks. In parts three and four, I'll cover two trends I believe will totally change agriculture as we know it today. In the final section I will briefly examine one type of derivatives I believe will be an important part of new age risk management techniques.

DERIVATIVE

I recognize the term derivative is not a household word, so I will make the definition as simple as possible. A derivative is a contract that involves the trading of rights or obligations based on an underlying product, without necessarily directly transferring that underlying product. The derivative instruments you are probably most familiar with are exchange-traded futures and options. Other derivatives are negotiated between counterparties in the over-the-counter (OTC) market, usually with the help of an intermediary. OTC derivatives come in a variety of forms, including swaps, hybrid instruments, energy forward contracts and trade options. Derivatives are used by a hedger to transfer the risk of an unacceptable change in the price of the underlying product to a speculator who is willing to accept that risk in anticipation of a favorable return on his/her capital investment.

Farmers' Attitudes about Managing Yield and Price Risk

Farm Futures magazine did a survey of 960 farmers last year and found that about five percent of them "are using available tools to manage production and financial risks." Some of the leading professors who teach risk management in land grant universities and many farm management Extension personnel tell me they think the number is closer to ten percent.

In his article entitled "Crop Deregulation is put to the Test in New Rural Crisis," Wall Street Journal reporter Scott Kilman had this to say about farmers and their attitude toward risk management. He quotes Dorothy Gilbert, manager of the family-owned elevator in Keosauqua, Iowa as saying, "They [local farmers] sell just when they need money. That's not smart." Ms. Gilbert had talked to her customers about derivatives, i.e., options on futures, which would have allowed them to lock in a profit early in the growing season. Only one farmer pulled the trigger, followed her advice and bought options. That anecdotal evidence lowers the percentage to something less than one in one hundred farmers in that community.

The Farm Futures magazine survey, the experience of those academics who are on the front line of teaching risk management to producers and the refusal to use derivatives by a high percentage of farmers in Keosauqua, Iowa all raise an interesting question. Why don't more producers manage their yield and price risks? There are of course a number of reasons. The one I believe should be at

the top of the list is the fact that the government managed the "lion's share" of growers production and price risks for 60 years. As a result there was no need for farmers to develop the skill set necessary to manage these risks themselves. Lacking the training and experience necessary to make prudent decisions about managing their production and price risks, most farmers do nothing to minimize such risks.

To their credit a small number of growers have learned how to analyze and manage their business risks since passage of the Federal Agricultural Improvement and Reform Act (FAIR Act). However, the President signed the FAIR Act nearly three years ago. And a majority of producers still don't realize that risk management is an absolute necessity when one farms for the market and not the government.

This fact is painfully clear when you read the headlines in the press concerning the emotional and financial trauma many farmers are experiencing because of devastating declines in prices for many agricultural commodities. For example, when compared to 1997 we find that 1998 prices declined as follows: corn, 27 percent; soybeans, 13 percent; wheat 29 percent; beef 20 percent; and a 50 year low for hogs.¹ The unfortunate result for many producers who had no downside price protection in the face of such low, low prices was captured in the headlines of a recent USA Today cover story, "Farms fold under price crunch."

At this time it is difficult to imagine that anything good could possibly come out of such a sad scenario. Nonetheless, let us hope that 1998 will serve as a wake up call to farmers to get serious about managing their production and price risks. If not perhaps one more "reality check" concerning commodity prices in the future will convince them. The World Bank's first Global Commodity Markets report forecasts that in real terms, prices for commodities will be lower in 2010 than they were in 1997.

You have heard the old saying that when the going gets tough, the tough get going. I believe farmers are a classic example of this adage. They are the epitome of the American tradition of over coming adversity by finding innovative solutions to challenges. And there is a confluence of trends taking place as we speak that will assist them in finding the risk management tools that fit their individual needs. Tools they understand and will be comfortable in using.

As I explain these trends and the farmer friendly risk management tools that are growing out of them you will understand why I believe farmers and derivatives will be a successful combination in the 21st century.

¹ Andrew Osterland, "Agriculture, Prognosis 1999," Business Week, 4 February 1999, 28.

THE "ELECULAR" REVOLUTION (ELECTRONIC/MOLECULAR)

The first trend I am going to talk about is the "Elecular" Revolution (Figure 1). You won't find the word "elecular" in the dictionary. It is a term I coined to refer to the awesome technological power that mankind has at its disposal upon combining the unlimited potential of electronic technology and molecular science.

The business world is responding to the Elecular Revolution in many ways, but one of the more visible responses is the emergence of the "life science" industry. For example, since 1995, Monsanto has changed its primary business from chemicals to crop biotechnology. Over the past three years, it has transformed itself by investing \$8 billion in seed companies like DeKalb Genetics, Asgrow, Calgene, Cargill's foreign seed operations and the European wheat seed breeding business of Unilever. Some time ago the Wall Street Journal carried an article by Scott Kilman in which he wrote, "Biotechnology is making plant breeders hot properties. Monsanto needs to control seed companies in order to get its genetically-engineered traits in the hands of farmers."

DuPont, another of the Fortune 500's most respected companies has its eye on crop biotechnology too. For example, in 1997, there was an estimated one million acres planted with the high-oil corn seed developed by Pioneer and marketed by Optimum - - a joint venture company formed by Pioneer and DuPont. By 1998, plantings in the US of high-oil corn seed had doubled to approximately two million acres.

I believe this two million acres is only the tip of the iceberg in terms of the total number of acres that will be planted in genetically modified organisms (GMOs) in the next century. After all, at the end of 1997 the worldwide total was close to 30 million acres.² The reason why more and more farmers will plant GMOs in the future is because there will be a revenue assurance provision written in the contract between the farmer and the seed company. Not only that but the contract will also include a firm price on the inputs the farmer will use and provide the financing to pay for them. Today there are companies that offer various combinations of the GMO seed, inputs and financing, however, I am aware of only one that has included a revenue assurance provision too.

The business process I have just described sounds simple. Believe me it isn't. It is a complex maze of matching seed sales with identity preserved grain storage; salesmen with farmers' orders for seed and input supplies and the contract they have written and signed. And then tracking the movement of the value added grain from the farmer to the elevator to the domestic or foreign end user. This process is a prime example of the Elecular Revolution at work, a fusion of electronic technology and molecular science.

² Alison Maintland, Financial Times, 9 January 1998

To give you a sense of the electronic side of managing all this data, here is a diagram (Figure 2) of how E-Markets of Ames, Iowa makes it happen. NetMarket is just one of many Internet based software applications developed by E-Markets as they connect agribusiness and the food industry. Their Internet address is www.e-markets.com. There may be other companies doing similar applications that I am not aware of. I am familiar with E-Markets because I do consulting work for them.

On the one hand there is nothing new as to the players and the business transactions by and between them in the diagram I just showed you. What is different is the fact that the Internet and GMOs are the change engines that make it happen in the innovative way it does. These same tools are the genesis of the "Evolution of Creative 21st Century Business Models for Agriculture." And I believe one of those models will be the "virtually integrated" enterprise.

The Evolution of Creative 21st Century Business Models for Agriculture

My vision of the "virtually integrated" business model for agriculture (Figure 3) would bring together independent enterprises, the technology providers, like E-Markets and the Seed Company, input suppliers, growers, merchandisers, processors, wholesalers/retailers and the consumer. The tie that would bind them would be an Internet based electronic agricultural information system with functional E-Commerce modules. A neutral third party would provide the software and hardware as well as professionally manage the continuous operation of this system. An important element in such a system would be one that provided farmers some risk management tools they don't have available to them now - - more about that in a moment.

In a "virtually integrated" enterprise there would be no centrally managed and controlled hierarchy with bureaucratic turf battles. On the contrary, the "virtually integrated" model would allow each player to retain its autonomy, independence, and ability to adapt quickly to new market demands and advanced technology. Another characteristic of the virtually integrated business model would be an absence of the traditional "I win - you lose" gamesmanship between buyers and sellers in the agricultural sector. In its place you will see a "demand driven" economic chain with the consumer in the drivers seat. I believe the "virtually integrated" arrangement will become one of the dominant business practices in agriculture in the new millenium.

There are two reasons why I believe that will happen. The first one I have already mentioned - - the "Elecular" Revolution. The "virtually integrated" model lends itself to accommodating the management demands of the "life sciences" industry. Second, in order to be competitive in the 21st century global economy, US agriculture needs to practice "costing the entire economic chain." Economist

Alfred Marshall wrote about it in the 1890s and Peter Drucker had this to say about it in the 1990s, "managing the economic cost chain will become a necessity. Indeed, executives need to organize and manage not only the cost chain but also every thing else - as one economic whole, regardless of the legal boundaries of individual companies."³ Peter Drucker is considered by many to be the "most important management thinker of our time."⁴

One of the most daunting challenges to "costing the entire economic chain" in agriculture is the development of risk management tools farmers will use because they understand them. And they know and trust the companies that stand behind these tools. That brings me to the final section of my presentation.

AGRICULTURAL TRADE OPTIONS

An Agricultural Trade Option (ATO) is a contract between two entities that are commercially involved in certain enumerated agricultural commodities. The Commodity Futures Trading Commission (CFTC) recognizes these entities might be a farmer, a livestock or poultry feeder, an elevator, a processor or a merchant handling grain. The contract gives one party the right, but not the obligation to deliver an agricultural commodity to the counter party. If delivery takes place the buyer pays the seller the strike price that was agreed upon by the parties at the time the option was written. In return for this price guarantee the seller of the commodity paid the buyer a premium when the option was originally entered into. Call it a price insurance policy if you like.

Although it took me four years to get the CFTC to lift its ban on Agricultural Trade Options (ATOs), I was finally successful in achieving that goal some two weeks before my term as a Commissioner was up in November of 1997. Then about six months after I left the CFTC to become a Fellow at the Institute of Politics, John F. Kennedy School of Government, at Harvard University, the agency published its Interim Final Rules on ATOs. I was disappointed in the regulatory structure laid out in the Interim Final Rules because in my opinion it is too restrictive. Apparently others in the agricultural sector feel the same way because no one has registered to become an Agricultural Trade Option Merchant (ATOM). As a result ATOs are not being used. I believe this will change as the grain trade industry, producer associations and the CFTC work together to amend the Interim Final Rules. When that happens here are some examples of ATOs that will be farmer friendly.

³ Peter F. Drucker, *Managing in a Time of Great Change* (New York: First Truman Talley Books/Plume, April 1998), 129

⁴Statement by Warren Bennis on the page entitled Praise for Peter Drucker and "Managing in a Time of Great Change" in the book by the same name (New York: Truman Talley Books/Plume, 1995).

EXAMPLE NUMBER ONE

For those producers who consider 1998 to be a lesson in what can happen if you don't have an insurance policy on price a simple "Walk Away" Agricultural Trade Option can be an attractive alternative to doing nothing or forward contracting. Another advantage of an ATO is that it allows a farmer to execute the option with an elevator, processor or merchant they know and trust; mostly local or nearby business establishments. The ATO can be tailored to fit each grower's individual situation as to quantity. It doesn't have to be for a fixed number of bushels like an exchange-traded option.

The expiration date can also be customized to meet each farmer's particular need. In fact the ATO can exceed the present exchange-traded option's one-year time frame. Under certain circumstances the farmer can buy a put and sell a call, thereby building a "fence" around a price range that he/she considers acceptable. This strategy will reduce the premium cost of the transaction.

In an exchange-traded option the strike price is for a specific dollar amount per bushel/pound. The same is true for an ATO. However, with a revenue assurance type ATO the strike price will be stated in total dollars per farm unit. And remember, this generic "Walk Away" ATO allows a farmer, for example, to legally walk away from the contract and sell his/her commodity to the highest bidder.

EXAMPLE NUMBER TWO

A moment ago I mentioned that the strike price could be "tied to a revenue assurance type ATO that would guarantee total dollars per farm unit." Here is one way this ATO might be offered to farmers.

A seed company wants to overcome the perception that a particular high oil corn seed has a yield drag problem. It negotiates the standard seed sales contract with the farmer, which, along with other considerations, would specify the number of acres to be planted and the premium to be paid per bushel. The Seed Company then writes a revenue assurance ATO using the number of acres and the December futures price plus the premium that has already been agreed to. It then adds to the equation the anticipated yield per acre. For example, 100 acres X 200 bushels per acre X \$2.50 (futures @\$2.20 + \$0.30 premium) per bushel. This results in a strike price of \$50,000.00 for that farm unit. The farmer pays a premium for that revenue guarantee. The Seed Company covers the price risk by using an exchange-traded derivative and an OTC weather derivative⁵ to cover

⁵ One type of weather derivative is based on indexes of Heating Degree-Days (HDD) and Cooling Degree-Days (CDD).

the yield risk. Or it could turn to an intermediary in the OTC market, like Koch Industries or Enron Corporation, that would handle the price and yield risks. The intermediation costs would be included in the premium the Seed Company paid. Or the Seed Company could use a derivative and crop insurance to cover its risk. Keep in mind the farmer gets \$50,000.00 even if the price per bushel at harvest is less than \$2.20 or even if weather related events preclude the farmer from delivering the 20,000 bushels. If the price at harvest for number two yellow corn is higher than \$2.20 then the farmer can "walk away" from the contract and sell it to the highest bidder. Also, it is important to remember the Seed Company would have to register as an Agricultural Trade Option Merchant (ATOM) and its sales people would have to register as Associated Persons (APs) in order to write, offer and execute an ATO.

EXAMPLE NUMBER THREE

The final example I will use covers a price risk management technique I believe will be given serious consideration by counterparties to ATOs. The operative principle is that of an Asian or Average Price option. According to the "Dictionary of Financial Risk Management," written by Gary L. Gastineau, an Asian option is, "An option whose settlement value is based on the difference between the strike and the average price (rate) of the underlying on selected dates over the life of the option, or over a period beginning on some start date and ending at expiration."

The following example is courtesy of Tim Andriesen of Koch Industries, Wichita Kansas. XYZ elevator, which is registered as an ATOM, is offering a "growing season" call option. This option pays off based on the average price of the December Futures contract between May 1 and July 31. This option struck at \$2.60 costs 7 cents. At the same time the December \$2.60 call is trading at 12.5 cents. The ATO contract between the farmer and XYZ elevator clearly states that the time frame and the absolute level of protection are less with the growing season Asian style option. However, the cost of this ATO is 5.5 cents less than the December call.

Given the random nature of markets there is something to be said in favor of a farmer selling for the average price over a given time frame. Predicting the weather and trying to outguess the market has its limitations. Even for those advisory services with state-of-the-art computer models and Ph.D. analysts.

Consider the following information from the AgMas Project at the University of Illinois: "the average net advisory (Fee based professional Market Advisory Service) corn price over the three years (1995-96-97) for the 19 programs is \$2.65 per bushel, which is two cents above the three-year market benchmark price of \$2.63." "The three-year average net advisory soybean price is \$6.73 per bushel, which is 17 cents above the three-year market benchmark price of \$6.65." The purpose of the AgMas Project is to present an evaluation of advisory

service pricing performance. Complete information is available at <http://www.aces.uiuc.edu/~agmas/>.

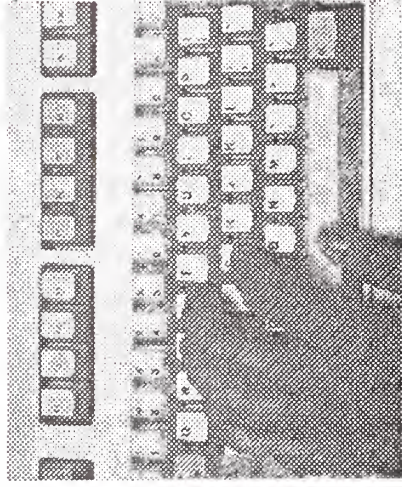
Conclusion

President Clinton and Secretary of Agriculture Glickman have publicly announced their intention to provide a "safety net" for farmers. Congress is considering what shape this "safety net" program should take and how it might be funded. In the meantime there is a process in place that will ultimately provide a "safety net" for farmers and I have described it in this presentation. That process would be greatly enhanced if the CFTC Agricultural Trade Option Pilot Program were amended as quickly as possible. As I said earlier, I believe the grain trade industry, producer associations and the CFTC are all working together in an effort to amend the Interim Final Rules in a way that will work for everyone concerned. I for one am optimistic that there will be an amended version by late spring or early summer.

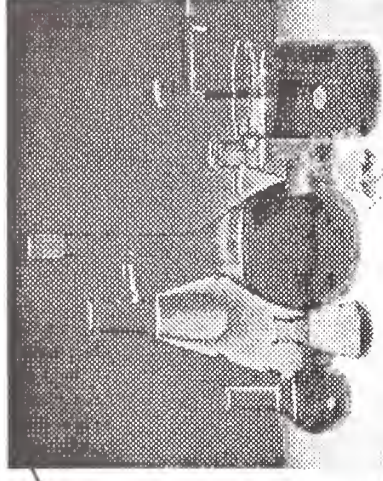
The “Elecular” Revolution of the 21st Century

The awesome technological power that mankind has at its disposal upon combining the unlimited potential of electronic commerce and molecular science

Electronic Commerce



Molecular Science



“Change Engines”

Driving

Realignment of the
World’s Agricultural
Infrastructure

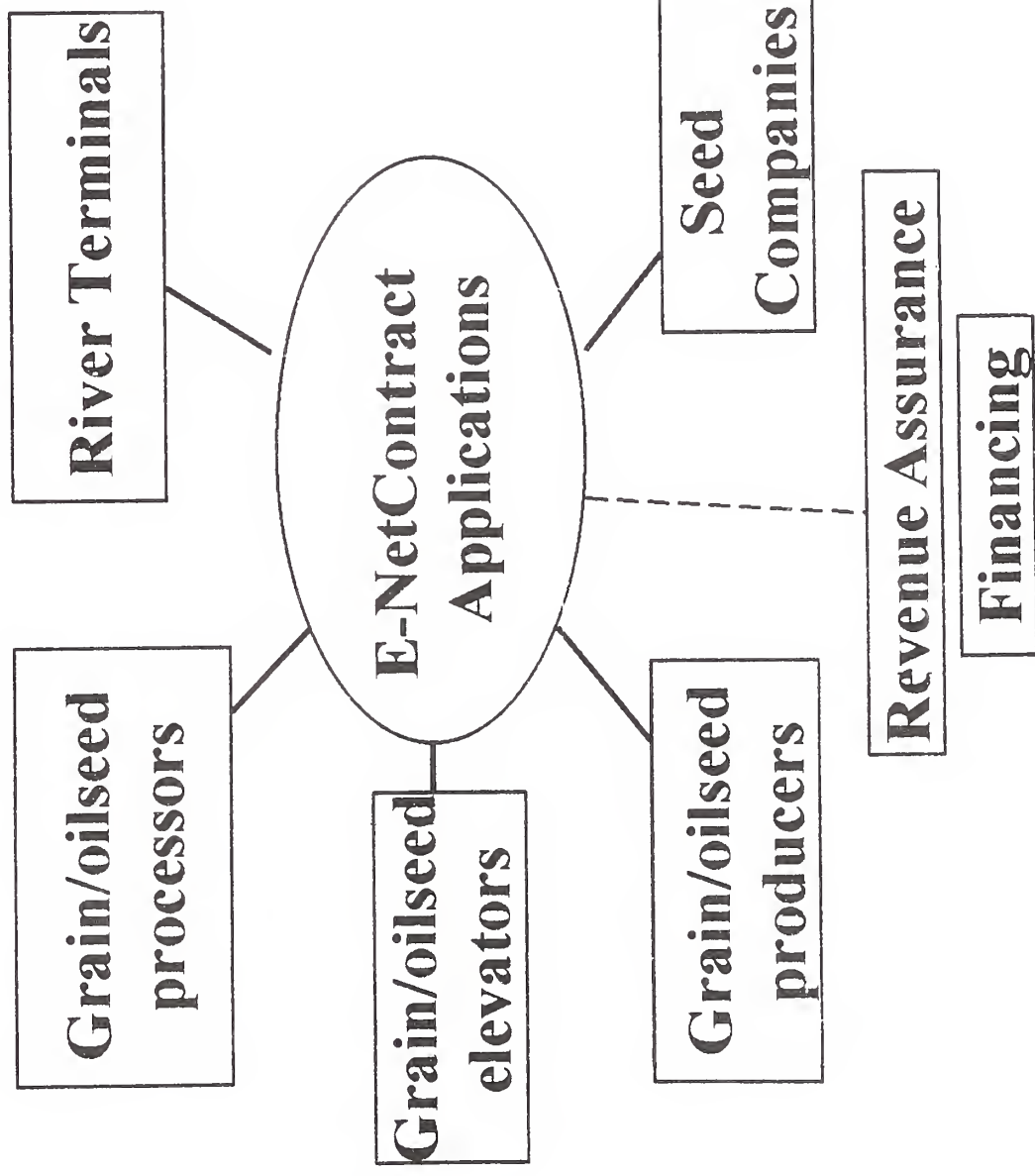
Life Science Industry

Monsanto

DuPont/Pioneer

Optimum

E-Markets NetContract



Features:

- Contract origination
- Quality data management
- Grain delivery management

Current participants

- DuPont
- Pioneer Hi-Bred
- Continental Grain
- Cargill Seed
- >400 local elevators
- >100 seed companies
- >6,000 Users

Implementations:

- OSCAR

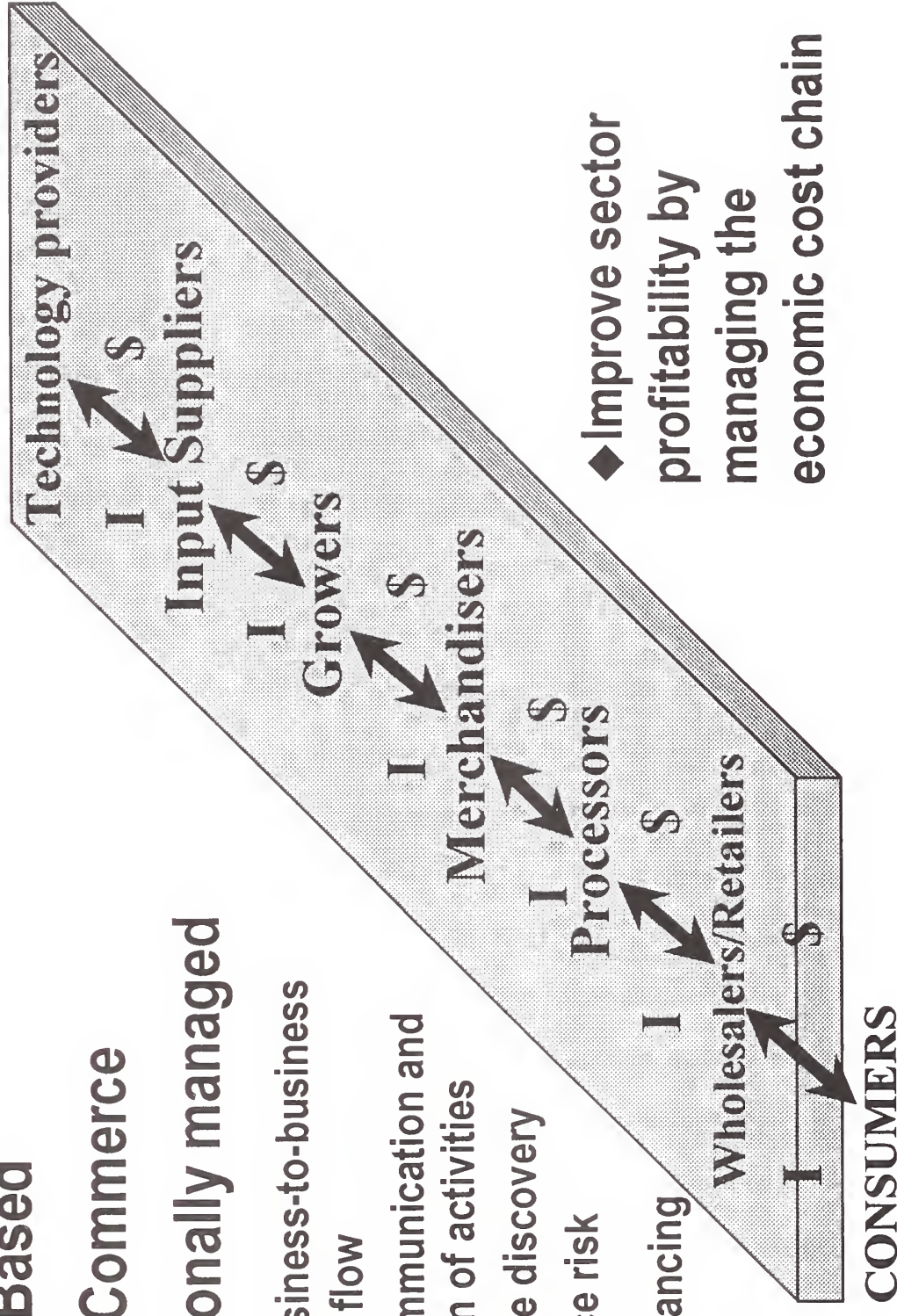
Internet Address:

- www.e-markets.com

21st Century “Virtually Integrated” Business Model for Agriculture

- ◆ Internet Based
- ◆ ELS & E-Commerce
- ◆ Professionally managed

- improve business-to-business information flow
- enhance communication and coordination of activities
- achieve price discovery
- manage price risk
- facilitate financing



Managing Risk Through Crop Insurance Value Added by Bundling Products

CROP INSURANCE

■ Protection against losses

(yield/quality and limited price protection)

■ Foundation for pre-harvest crop sales

(Gives courage to make decisions when prices are good and crop yields are uncertain)

It's Farm Financial Management that Works!



1999 USDA Agricultural Outlook Forum
Arlington, Virginia
February 22-23, 1999

by
E. Eugene Gantz
Senior V.P., Marketing/Public Relations
Rain and Hail L.L.C.

Managing Risk Through Crop Insurance Value Added by Bundling Products

**E. Eugene Gantz
Sr. Vice President, Rain and Hail L.L.C.**

Overview:

Crop insurance protection guarantees growers a pay day...either through crop production receipts or an insurance loss payment. It can provide excellent protection against low yields, poor quality and limited price risk when used alone. It is an excellent foundation for managing crop price and financial risks when bundled with board of trade crop pricing tools.

Bundling crop insurance products is a more sophisticated approach to formulating risk management portfolios that can result in added value for growers. This value occurs at the micro (crop protection) and macro levels (overall farm protection).

Why Bundle:

Bundling is done either to obtain more aggregate protection (i.e. to increase the price election used to calculate liability), add niche coverages or perils, or to get more protection per premium dollar by varying the deductibles.

Examples are:

More aggregate protection:

1. MPCl, corn @ \$2.10/ bu. + POP @ \$.50/ Bu. = \$2.60/ Bu. X Avg. Yield = Liability
2. MPCl and Crop Hail coverage for protection up to actual cash value and added cash flow protection.

Reduced cost:

Premium per acre can be reduced 35 to 65 percent while maintaining similar dollar amounts of protection (liability) by varying the deductible(s).

Comprehensive Financial Management:

Bundling crop insurance and board of trade pricing tools can manage the vast majority of the yield, quality and price risk and therefore provide broad financial management and profitability.

How Bundling is Done:

Start with a foundation of one of the federally sponsored plans because they are both comprehensive and subsidized. Their primary weakness is that deductibles and amounts of protection are correlated. In other words, if a grower decides to increase the self-insurance and increase the deductible from 25 to 30 percent, the amount of protection declines proportionately. This is in sharp contrast to other forms of insurance where the amount of protection and the size of the deductible are separate isolated decisions.

Illustrations of Bundling:

1. Side-by-side comparison of comprehensive and subsidized foundation coverage,
2. Combining products for maximum protection,
3. Cash flow protection from product aggregation,
4. Combining products to reduce cost by increasing deductibles while maintaining dollar amount of protection,
5. Combining crop insurance, market tools and farm bill safety-nets for maximum revenues,
6. Combining insurance and board of trade tools for yield and price management to maximize profits,
7. Quantifying the compound value of using crop insurance and hedging to reduce risk exposures,
8. Rules of thumb for crop insurance based hedging.

Summary:

Crop insurance has become the primary risk management tool of crop farmers. Today almost 70 percent of eligible U.S. are insured. The next big step may be farmers' crop insurance buying habits changing from buying a single coverage to a portfolio or bundled coverage approach as they become more sophisticated and proficient managers of risk for increased profit.

Figure 1.

COMPREHENSIVE CROP PROTECTION – Federally Sponsored and Cost Shared – Per Acre Illustration

CROP INSURANCE COMPARISONS Central IA., Corn, NI									
180 Bu/A NIAPH Farm BOT Early Price \$2.35 CRC Price Limit \$1.50									
Level	MPCI			Crop Revenue (CRC)			Income Protection (IP)		
	Amount of Bu Loss	Net Premium*	Cost Per Bu	Protection MAX Protect & Loss Trng	Net Premium*	Cost Per Bu	Early BOT \$Bu @ Protection & Loss Trng	Net Premium*	Cost Per Bu
50%	\$168	\$1.38	\$0.017	\$188	\$2.46	\$0.02	N/A	\$188	\$0.02
55%	\$165	\$1.35	\$0.017	\$185	\$2.43	\$0.02	N/A	\$185	\$0.02
60%	\$162	\$1.32	\$0.017	\$182	\$2.40	\$0.02	N/A	\$182	\$0.02
65%	\$159	\$1.29	\$0.017	\$179	\$2.37	\$0.02	N/A	\$179	\$0.02
70%	\$156	\$1.26	\$0.017	\$176	\$2.34	\$0.02	N/A	\$176	\$0.02
75%	\$153	\$1.23	\$0.017	\$173	\$2.31	\$0.02	N/A	\$173	\$0.02
Level	MPCI			Crop Revenue (CRC)			Income Protection (IP)		
	Amount of Bu Loss	Net Premium*	Cost Per Bu	Protection MAX Protect & Loss Trng	Net Premium*	Cost Per Bu	Early BOT \$Bu @ Protection & Loss Trng	Net Premium*	Cost Per Bu
50%	\$126	\$1.26	\$0.021	\$146	\$2.26	\$0.03	N/A	\$146	\$0.03
55%	\$123	\$1.23	\$0.021	\$143	\$2.23	\$0.03	N/A	\$143	\$0.03
60%	\$120	\$1.20	\$0.021	\$140	\$2.20	\$0.03	N/A	\$140	\$0.03
65%	\$117	\$1.17	\$0.021	\$137	\$2.17	\$0.03	N/A	\$137	\$0.03
70%	\$114	\$1.14	\$0.021	\$134	\$2.14	\$0.03	N/A	\$134	\$0.03
75%	\$111	\$1.11	\$0.021	\$131	\$2.11	\$0.03	N/A	\$131	\$0.03
Central IA., Corn, NI									
120 Bu/A NIAPH Farm BOT Early Price \$2.35 CRC Price Limit \$1.50									
Level	MPCI			Crop Revenue (CRC)			Income Protection (IP)		
	Amount of Bu Loss	Net Premium*	Cost Per Bu	Protection MAX Protect & Loss Trng	Net Premium*	Cost Per Bu	Early BOT \$Bu @ Protection & Loss Trng	Net Premium*	Cost Per Bu
50%	\$126	\$1.26	\$0.021	\$146	\$2.26	\$0.03	N/A	\$146	\$0.03
55%	\$123	\$1.23	\$0.021	\$143	\$2.23	\$0.03	N/A	\$143	\$0.03
60%	\$120	\$1.20	\$0.021	\$140	\$2.20	\$0.03	N/A	\$140	\$0.03
65%	\$117	\$1.17	\$0.021	\$137	\$2.17	\$0.03	N/A	\$137	\$0.03
70%	\$114	\$1.14	\$0.021	\$134	\$2.14	\$0.03	N/A	\$134	\$0.03
75%	\$111	\$1.11	\$0.021	\$131	\$2.11	\$0.03	N/A	\$131	\$0.03
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75%	\$111	\$1.11	\$0.021	\$131	\$2.11	\$0.03	N/A	\$131	\$0.03

80 and 85% coverage levels will be available in limited areas in '99. See your "Rain and Hail" agent for details.

Information Courtesy of Rain and Hall L.L.C., West Des Moines – "The Crop Insurance Industry Leader" 1-800-776-4045
 *Adjusted for Emergency Relief Act Protection Bonus
 Revised 1/21/1999

Figure 2.

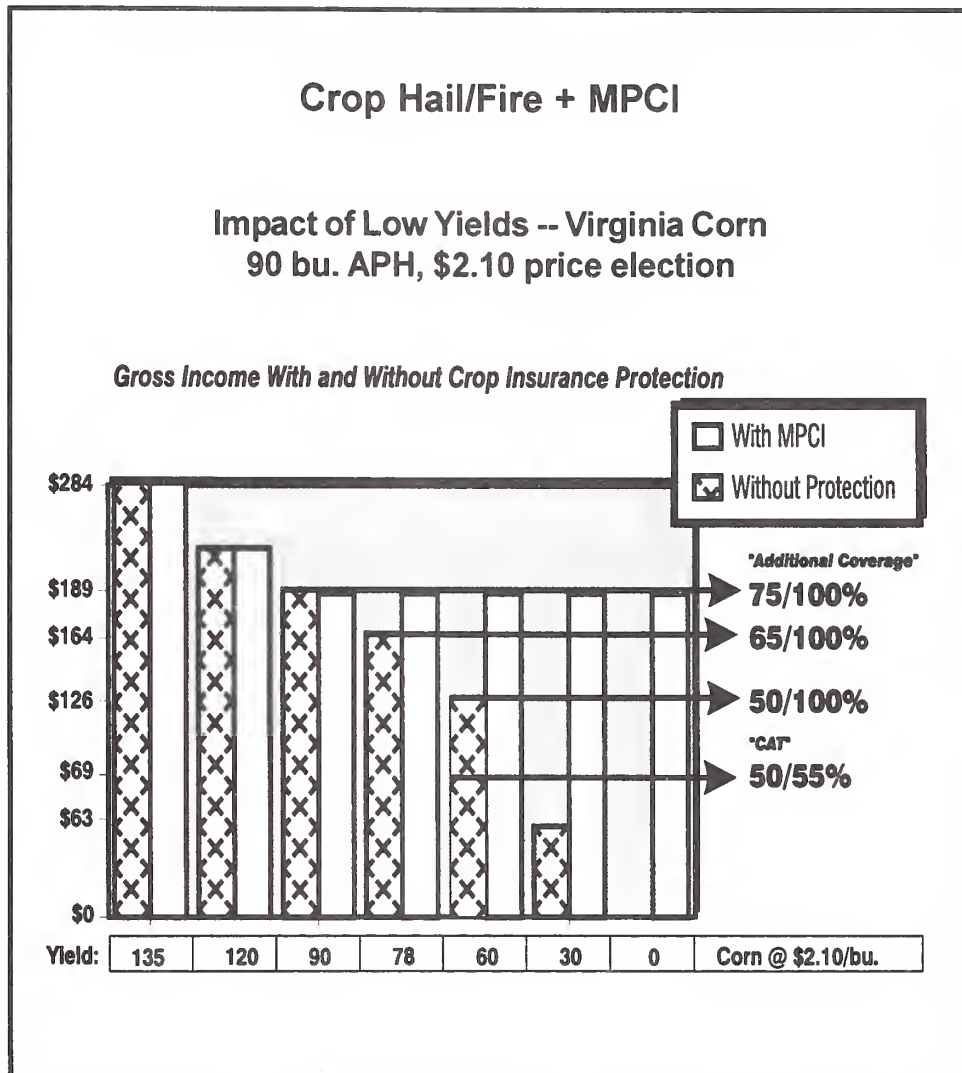


Figure 3.

BLENDED COVERAGE ILLUSTRATIONS

Objective: Maximum Protection From Different Blends of Coverage
Central Iowa Corn Example
120 bu./a. APH, NI, 1,000 acres

CROP REVENUE COVERAGE at \$2.35/bu. (Use this gross income guarantee to manage yield, quality and hedging risk.)¹

<u>Plan</u>	<u>Liability</u> <u>Protection</u>	<u>Max</u> <u>Protection</u> ²	<u>Bu. Guarantee</u>	<u>Farmer's</u> <u>Premium</u> ³
65/100	\$ 183,000	\$ 300,000	N/A	\$ 5,070
70/100	\$ 197,000	\$ 323,000	N/A	\$ 7,390
75/100	\$ 212,000	\$ 347,000	N/A	\$ 10,750

MULTIPLE PERIL COVERAGE at \$2.10/bu. (Use this comprehensive yield guarantee coverage as the foundation to manage risk.)¹

<u>Plan</u>	<u>Liability</u> <u>Protection</u>	<u>Bu. Guarantee</u>	<u>Farmer's</u> <u>Premium</u> ³
CAT	\$ 69,000	60,000	\$ 60
65/100	\$ 164,000	78,000	\$ 2,810
70/100	\$ 176,000	84,000	\$ 4,290
75/100	\$ 189,000	90,000	\$ 6,480

PRICE OPTION PLUS AND MP (Use for maximum protection based on yield guarantee by using the price election.)

<u>Plan</u>	<u>Liability</u> <u>Protection</u>	<u>Bu. Guarantee</u>	<u>Farmer's</u> <u>Premium</u>
MP 75/100	\$ 189,000	90,000	\$ 6,480
POP 50¢/Bu.	\$ 45,000	90,000	\$ 2,800
Total	\$ 234,000		\$ 9,280
MP 65/100	\$ 164,000	78,000	\$ 2,810
POP 50¢/Bu.	\$ 39,000	78,000	\$ 1,600
Total	\$ 203,000		\$ 4,410

INCREASING PAYMENT AND MP (Use to reduce risk of hedging by replacing bushels when MP loss occurs.)

<u>Plan</u>	<u>Liability</u> <u>Protection</u>	<u>Bu. Guarantee</u>	<u>Farmer's</u> <u>Premium</u>
MP 75/100	\$ 189,000	90,000	\$ 6,480
IN 50/63¢/Bu.	\$ 37,800	60,000	\$ 830
	\$ 226,800		\$ 7,310
MP 65/100	\$ 164,000	78,000	\$ 2,810
IN 50/\$1.05/Bu.	\$ 63,000	60,000	\$ 1,390
	\$ 227,000		\$ 4,200

REPLACEMENT COVERAGE AND MP (Use to reduce risk of hedging by replacing bushels when MP loss occurs.)

<u>Plan</u>	<u>Liability</u> <u>Protection</u>	<u>Bu. Guarantee</u>	<u>Farmer's</u> <u>Premium</u>
MP 75/100	\$ 189,000	90,000	\$ 6,480
RC \$1.00/bu.	\$ 90,000 max. *	90,000	\$ 2,340
			\$ 8,820
MP 65/100	\$ 164,000	78,000	\$ 2,810
RC \$1.00/bu.	\$ 78,000 max. *	78,000	\$ 1,330
			\$ 4,140

CROP HAIL (Use for acre-by-acre protection from crop hail. Can protect bumper crops up to actual cash value, covers MP deductible for losses due to hail damage.)

<u>Liability</u> <u>Protection</u>	<u>Farmer's</u> <u>Premium</u>
\$ 400,000 (\$400/A. x 1,000 A.)	\$ 8,000

¹ MPCI is available to all producers regardless of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status.

² Coverage can increase up to this amount if CBOT harvest price increases max of \$1.50

³ Fee can be waived for qualifying "Limited Resource Farmers"

⁴ Premium is adjusted to reflect the Emergency Relief Protection Bonus.

Figure 4.

BLENDED COVERAGE ILLUSTRATIONS

Objective: 75/100 MP Equivalent Liability at Less Cost from Blended Coverages
Central Iowa Corn Example
120 bu./a. APH, NI, 1,000 acres

CROP REVENUE COVERAGE at \$2.35/bu. (Use this gross income guarantee to manage yield, quality and hedging risk.)¹

Plan	Liability Protection	Max Protection ²	Bu. Guarantee	Farmer's Premium ³
65/100	\$ 183,000	\$ 300,000	N/A	\$ 5,070
70/100	\$ 197,000	\$ 323,000	N/A	\$ 7,390
75/100	\$ 212,000	\$ 347,000	N/A	\$ 10,750

MULTIPLE PERIL COVERAGE at \$2.10/bu. (Use this comprehensive yield guarantee coverage as the foundation to manage risk.)¹

Plan	Liability Protection	Bu. Guarantee	Farmer's Premium ³
CAT	\$ 69,000	60,000	\$ 60
65/100	\$ 164,000	78,000	\$ 2,810
70/100	\$ 176,000	84,000	\$ 4,290
75/100	\$ 189,000	90,000	\$ 6,480

MP with private enhancements to increase MP 65/100 to liability to about \$189,000 (75/100 MP)

PRICE OPTION PLUS AND MP (Use for maximum protection based on yield guarantee by using the price election.)

Plan	Liability Protection	Bu. Guarantee	Farmer's Premium
MP 65/100	\$ 164,000	78,000	\$ 2,810
POP 40¢/Bu.	\$ 31,200	78,000	\$ 1,280
Total	\$ 195,200		\$ 4,090

Cost of MP 75/100	\$ 6,480	
Premium Savings	\$ 2,390	35% Reduction

INCREASING PAYMENT AND MP (Use to reduce risk of hedging by replacing bushels when MP loss occurs.)

Plan	Liability Protection	Bu. Guarantee	Farmer's Premium
MP 65/100	\$ 164,000	78,000	\$ 2,810
IN 50/42¢	\$ 25,200	60,000	\$ 550
	\$ 189,200		\$ 3,360

Cost of MP 75/100	\$ 6,480	
Premium Savings	\$ 3,120	50% Reduction

REPLACEMENT COVERAGE AND MP (Use to reduce risk of hedging by replacing bushels when MP loss occurs.)

Plan	Liability Protection	Bu. Guarantee	Farmer's Premium
MP 65/100	\$ 164,000	78,000	\$ 2,810
RC 50¢/Bu.	\$ 39,000 max. *	78,000	\$ 1,130
			\$ 3,940

* Triggers only if market moves and production loss occurs

Cost of CRC 75/100	\$ 10,750	
Premium Savings	\$ 6,810	65% Reduction

CROP HAIL (Use for acre-by-acre protection from crop hail. Can protect bumper crops up to actual cash value; covers MP deductible for losses due to hail damage.)

Liability Protection	Farmer's Premium
\$ 200,000 (\$200/A. x 1,000 A.)	\$ 4,000

¹ MPCl is available to all producers regardless of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status.

² Coverage can increase up to this amount if CBOT harvest price increases max of \$1.50.

³ Fee can be waived for qualifying "Limited Resource Farmers".

⁴ Premium is adjusted to reflect the Emergency Relief Protection Bonus.

Figure 5.



Figure 6.

ARM Program Scenarios For Your Farm

The Allendale Risk Management program (ARM) is a complete risk management program that combines Rain and Hail's crop insurance program and Allendale's marketing program.

Corn

What is your avg yield

we need 4 yr history

120

Do you currently use crop insurance?

if so, what kind, what levels, what is your purpose for having crop insurance?

What is your cost of production per acre?

250

What percent insurance coverage do you want (%)

75

Estimated insurance premium (15%)

16

What do you think the Feb price of Dec futures (the base price) 2.75?

2.35

Where do you feel you can get Dec futures hedged at (\$/bu)?

2.50

Which call option would you buy for upside protection (\$/10)?

2.90

How much option premium do you think you will need to pay (\$/12)?

0.10

Your calculated insured yield is

80.00

Your calculated revenue base is

188.50

Your calculated break even per bushel (based on average yields)

2.08

Your actual break even per bushel (based on actual yields)

1.79

Examples

Assumptions	Actual yield	Scenario A
	Actual fall price	1.90

Examples w/ no ARM

If you do not hedge

Free mkt:	Actual yield	140
	Actual fall price	1.90
	Gross income	266

If you use the ARM program

Free mkt:	Insured bu	60 X hedge	2.50	225.00
	Excess bu	50 X fall px	1.90	95.00

Options:	Cost of calls on insured bu	9.00
	Option payment	0.00
Insurance:	Cost of insurance	16.00
	Recalculated revenue base	211.50
	Insurance payment	
	If actual yld X fall px < rev base, then = print	0.00
	Gross income	295.00

Note: The above worksheet is strictly a simulation of revenue based on a set of assumptions. Any variation of positions or differences of actual yield and/or price other than those stated above could cause a substantial reduction in performance.

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Allendale Inc. 1-800-2 MARKET (262-7538)

Broker Name Allendale marketing specialist

Producer Name Good Producer

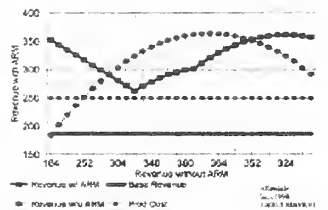
Producer Phone 1 800 262 7538

4506 Prime Parkway

McHenry IL 60050

ARM Revenue Analysis

Revenue Risk vs Variable Risk



Note: Analytical formulas assume a fixed supply price elasticity. Actual elasticity could vary results.

Examples

Assumptions	Actual yield	Scenario B
	Actual fall price	4.00

Examples w/ no ARM

If you do not hedge

Free mkt:	Actual yield	60
	Actual fall price	4.00
	Gross income	240

If you use the ARM program

Free mkt:	Insured bu	60 X hedge	2.50	150.00
	Excess bu	-30 X fall px	4.00	-45.00

Options:	Cost of calls on insured bu	9.00
	Option payment	99.00
Insurance:	Cost of insurance	18.00
	Recalculated revenue base	380.00
	Insurance payment	
	If actual yld X fall px < rev base, then = print	120.00
	Gross income	298.00

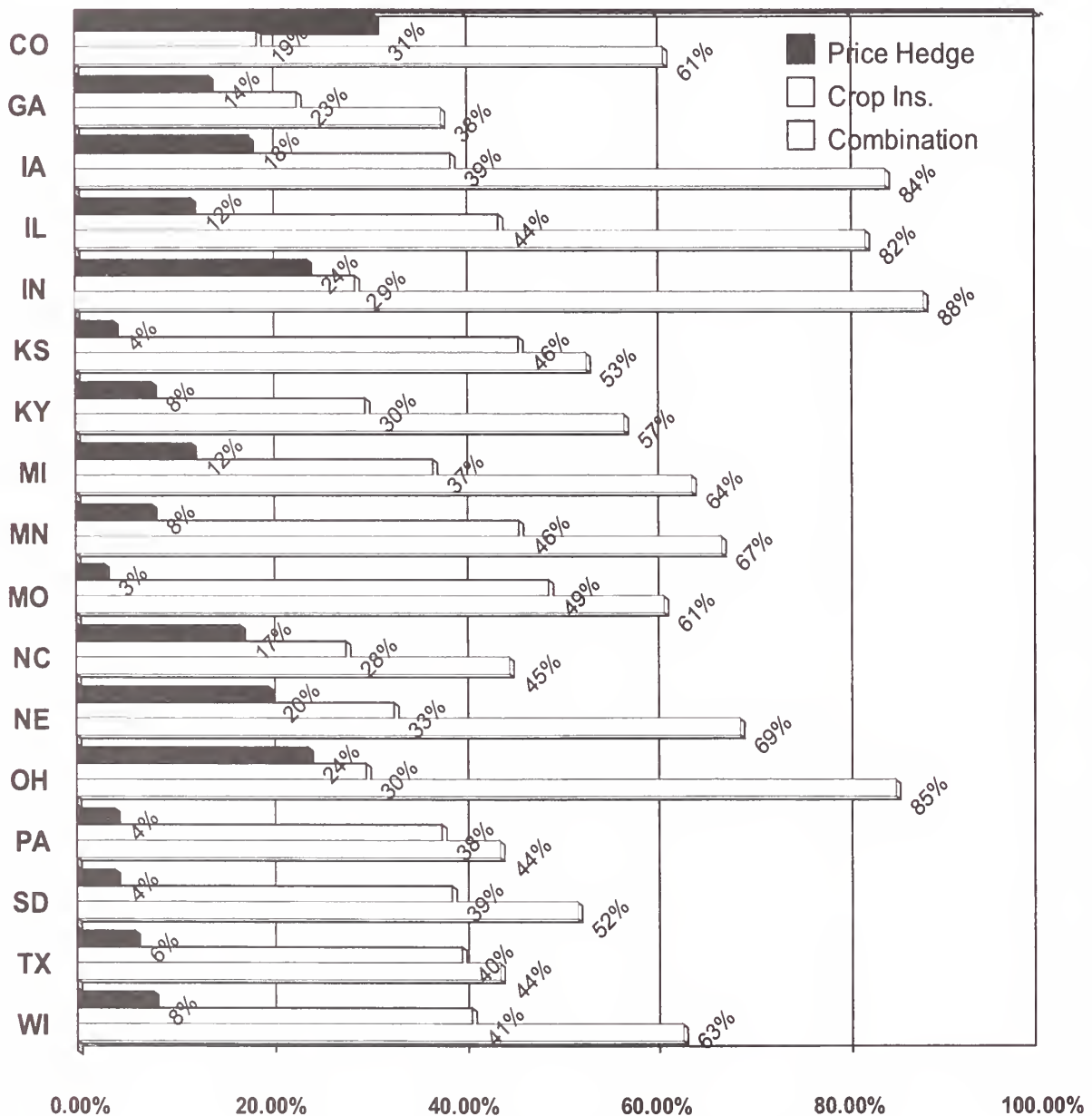
The thoughts expressed and the basic data listed, while they are believed to be reliable, are not intended to be used as a basis for action. Any economic or financial forecast is a subject to change without notice. Hypothetical or simulated performance results have been shown. Investors should not make any investment decisions based on these results. Simulated trading programs are subject to the benefit of hindsight. No representation is being made that the account will or is likely to achieve profits or losses similar to those shown. Commodity trading involves substantial risk of loss and is not a suitable investment for all investors. The purchase or sale of any commodity contract should be based on the information and analysis of the market and not on the information and analysis presented herein. Any republication, or other use of this information and thoughts expressed herein, without the written permission of Allendale, Inc., is strictly prohibited. Allendale, Inc. ©1998

Figure 7.

RISK MANAGEMENT of CORN GROSS INCOME

Value of Various Tools

% Reduction in Probability of <70% of Expected Gross Revenue



Avg. county estimates by state; Source: ERS/USDA
Information courtesy of Rain & Hail - The industry leader 1-800-776-4045

Figure 8.

Farmers Trading Company / Hamaker Crop Insurance
Mitchell, SD
1-800-234-2238

- ★ **Hands-on assistance for the grower**
 - Farmers Trading Company works with the grower to implement a marketing plan by providing advice on market conditions and pricing opportunities
 - Most customers are more comfortable with cash contracts at the local elevator--Farmers Trading Company helps them place these contracts
 - Hamaker Insurance provides crop insurance advice and services as a foundation for preharvest marketing--No-Compete on Crop Insurance for Farmers Trading Co. customers
-

Farmers Trading Company 1998 Results

New Crop:

- ★ 50% of the corn crop insurance bushel guarantee priced at \$2.80 or greater
- ★ 60% of the soybean crop insurance bushel guarantee priced at \$6.54 or greater
- ★ Hedge to arrive contracts are being used successfully in areas with unfavorable basis

Old Crop:

- ★ Sold all remaining corn in April at \$2.45 (current cash price is \$1.90)
- ★ Sold 50% of the soybean crop in February at \$6.47
- ★ Sold remaining soybean crop in May at \$6.25 (current cash price is \$5.57)

Figure 9.

FARM FINANCIAL PLANNING

Based on Crop Insurance

COMPLETE FINANCIAL \ RISK MANAGEMENT

Crop Insurance
Protection

+

Pre-harvest
Crop Pricing

=

Maximize Profits &
Reduce Risk

I. Crop Insurance Provides *Farm Specific* -

1. Low yield\poor *quality* protection
2. Limited *price* protection
3. *Guarantees* (up to 75% of historical yield) can be *basis for early hedging decisions* (before crop yield is known) and
4. *Prevented planting guarantees* (up to 70% of planted guarantees) can be the *basis for very early hedging* decisions (before crop is planted).
5. *Crop Hail coverage* (up to ACV) can be the basis for late season pre-harvest sales to cover the extra yield of bumper crops in the field and MP deductibles.

II. Pre-harvest Sales -

1. *Floor* under crop prices,
2. Opportunities to *maximize profits*, and
3. *Reduces farm storage* needs and costs.

III. Ag Credit -

1. Operating loans to *grow* and *market* the crop
2. Crop insurance is *liquid collateral to secure loans*
3. Some lenders are considering *more favorable terms* when growers
 - * Have *adequate* crop insurance *protection*,
 - * *Hedge* their crops, and
 - * *Assign the "loss proceeds"* to lender.

The Sign of an Approved Agent



"The Crop Insurance Industry Leader"

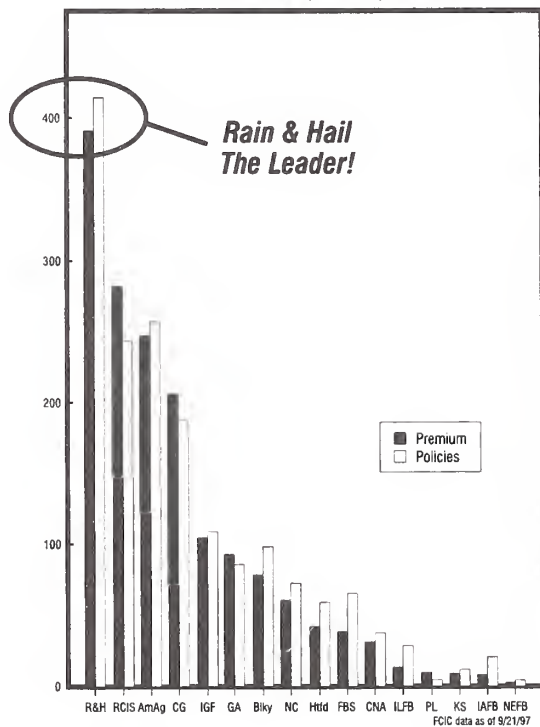
Figure 10.

200,000 Farmers Choose RAIN AND HAIL Insurance Services!

Crop insurance companies are not created equal!

- **Professional Premier Service**
200,000 policyholders insuring 450,000 crops (MP & CH) through Rain and Hail (40% more than nearest competitor)
- **Financial Strength - Assures Capacity and Ability to Pay Claims**
Each policy is backed by billions of dollars; CIGNA (\$99 billion), Agri General and the strongest reinsurers.
- **Fast Claims Service Since 1919**
Claims are paid in about 15 days. A reputation built on prompt service and financial soundness.
- **Right Products to Manage Today's Risks**
MPCI, CRC, IP, RA, POP, RC, IN, RPO, Crop Hail, and other specialized coverages
- **Industry Leader Recognized Worldwide**
Largest writer of MPCI each year since the mid-1980s

Farmers Confidence in the MPCI Companies
MPCI Premium/Polices Sold by Private Organizations



Contact a Rain and Hail agent today!

THANKS!
For making
Rain and Hail
the largest
writer again!



**Ask About
the 1999
Protection
Bonus!**

Get your crop insurance
check-up from the industry leader!

to keep you financially healthy

Planning the Statistics Program for the Future

1.0 INTRODUCTION

The purpose of this paper is to present how NASS plans to review its program of agricultural statistics, which now includes the Census of Agriculture. The paper will also discuss some issues to be faced.

The timing of the transfer of the Census to NASS meant that the content had largely been determined. In order to complete the census in a timely manner, there was little time to integrate census activities with the on-going sample survey program. As a result, parallel systems were conducted in 1998 which meant some redundancy occurred.

The effort to reconcile census numbers with previously published estimates of everything from farm numbers to crop production and livestock inventories was complicated because some census terms and definitions were different from those traditionally used by NASS.

Between now and the 2002 Census, NASS intends to integrate the data requirements across the survey and census programs as well as harmonize all terms and definitions. This will be done against a backdrop of some significant changes going on in agriculture that also need to be considered.

These trends will be reviewed followed by a discussion about how they will affect the review of the statistics program. Then the strategy to be followed to evaluate and update the statistics program will be presented.

2.0 TRENDS SHAPING THE FUTURE OF AGRICULTURE

Significant trends are currently underway that will have a major impact on agriculture. The fact they are happening at the same time makes them even more significant because of the cause and effect relationships between them. These trends which include technology, the changing role of governments, structural changes in agriculture, and the globalization of trade and markets, are developing at a faster pace than at any similar time in history. These trends will be explored in more detail followed by the resulting consequences and data requirements.

- 2.1** *Technology* The rapid advancements in genetic engineering are now providing crop varieties that are pest and disease resistant. These are rapidly being followed by crops being developed for a specific purpose, for example, a significant acreage is being devoted to high oil corn. As significant, this corn acreage is produced under contract which will have consequences on the structure of agriculture. Soon to follow will be crops designed to produce a feed that combined with a genetically designed livestock or poultry specie

will produce a food product with desired dietary characteristics. These products will be the result of alliances formed between the food producers and the food processors. The advancements in computer technology are causing an information explosion. The use of Internet has almost overnight given the most remote locations access to all of the information in the world. This is raising new requirements for the speed of information delivery and will be adding pressure to statistical organizations to make use of the technology already being embraced by their data providers and customers.

- 2.2 Changing Role of Governments** A common occurrence for countries around the world, whether they are developing or developed, is that the role of governments in agriculture is changing. Countries with huge populations and agricultural production are moving from planned economies to market economies. This development accompanied by a decrease or entire elimination of production controls in even the most developed countries means that agricultural producers rather than governments will be deciding what to produce. This will lead to more volatility in levels of production than seen in the past with resulting wider swings in prices.

As governments get out of the role of mandating production and marketing controls, they are increasingly involved in monitoring the affect of agriculture on the environment and food safety issues. These are posing new data challenges. There is a growing need to statistically measure possible contamination of food products as they move from the field through the processing stages. Some governments are considering the use of source labeling to follow a product from its source through the food chain. Source labeling will be used as both a marketing tool as well as an environmental, food safety, and animal health monitoring procedure.

- 2.3 Structure of Agriculture is Changing** This trend has been underway for some time, but is being accelerated by technology and the changing role of governments. First is the growing number of small part time farms. For many households, this is to preserve a way of life and supplement the family income. These small farms, if they produce anything for sale, produce mainly for local or “niche” markets. They can also often avoid some of the government regulations that affect the large commercial operations.

A smaller number of large commercial farms is accounting for the majority of the agricultural production. In the U.S., only about 300,000 farms out of about 2.0 million account for over 85 percent of the agricultural production. Because of the technological developments discussed above, these large commercial farms will produce commodities under contractual arrangements with either a seedstock company or a food processing company.

The changing structure is being accompanied by a rise in the size accompanied by a reduction in the number of Multi-National companies that control “farm to dinner” bio-technologies and pipelines. In the U.S., few companies are rapidly gaining ownership of the seed industry which means with their genetic engineering capabilities they will control the seedstock of agriculture. These companies are forming alliances with grain merchandising companies. Some with their network of grain elevators and feed manufacturing facilities have also entered into the livestock production business with large

cattle feedlots and extensive hog production facilities. Alliances between companies in seedstock and grain merchandising means that the large commercial farming operations will be part of a contractual chain that links plant and livestock seedstock with the production, marketing, processing and retail distribution pipelines. Boundaries between the production, processing, and marketing of agricultural commodities will become blurred.

- 2.4** **Globalization of Trade and Markets** Primarily the result of the reduction of trade barriers and restrictions, and the improved flow of information, the world is quickly becoming a global market rather than a national market. Price discovery in the futures exchange in Chicago is driven as much by news about the U.S. crop as it is about developments in China or Australia. As the markets become more world oriented, it is quickly becoming apparent there is a huge need for better information about the current supplies and prospects for future supplies for all production regions.

There is also a blurring of national boundaries and a rising need for information about production regions. For example, the northern great plains region of the U.S. produces the same wheat grown across the border in Canada. The wheat market needs information about the supplies, both current and projected for this region, with little need for country level data.

3.0 RESULTING DATA REQUIREMENTS

The changing trends in agriculture are already making the data requirements more difficult to define because of the complexity of the issues driving each one. The discussion on data requirements will focus on two categories that require information for decision making: Marketing and market planning, and public policy, and investment. What will become clear is that the data needs to support a world market are significantly different from those for public policy and investing. Data to support the world markets are needed at the national level while the other data requirements demand information down to the local level.

- 3.1** **Marketing and Market Planning** The ability to genetically engineer a crop or livestock variety or specie specifically for a unique purpose will result in more individual products, each with its own independent market. Today, we think of a single corn or soybean market. In the future, we will see a market for high oil corn, corn for sweetening, and corn with various feed and milling characteristics. Each of these products will have its own market. These different corn products will be in competition for the corn producing land, but because of the different uses, there will be an increasing need for more detailed information about production by marketing classes. This issue could be influenced by the amounts produced under contract and moving through the marketing chain independently of the open markets.

Forecasts of future supplies for a nation or production region crossing national boundaries will be as important as historic information at local levels. This runs counter to the strategy used by most statistical organizations that create statistics from the bottom up. Regional and local data may be of secondary importance for efficient world markets.

- 3.2** **Public Policy and Investment Data Requirements** The increasing role of governments in environmental and food safety issues will increase the need for spatial data. Spatial data can be considered to be small area statistics that follow geographic or transportation boundaries rather than political boundaries.

The industrialization of agriculture with contractual alliances between the different entities in the food chain will make it increasingly difficult to provide the traditional measures that describe agriculture for policy purposes. For example, it will be difficult to determine a farm gate price of a commodity that was grown under contract with the payment to be determined by the value of the end product. Traditional measures of farm income will be difficult to define as production inputs at the farm level are supplied by the contracting firm, and the value of the commodity determined only after it has been processed and distributed to the consumer. The income to the farm operator only represents the marginal cost of the service provided rather than the value of the product produced minus expenses.

Demographic statistics about agriculture and measurements of structure will continue to be important. While there will be fewer commercial farming units, their operating structure will be more difficult to uniquely define for statistical sampling and reporting purposes. It will be difficult to allocate costs of production and value of production to unique farming units. In addition, these farming units will be operated by many people that will require a new definition of what is a “farm operator”. The current definition assigns one person to each farm for a 1-1 relationship, where in reality, large partnership and corporate farms have many people sharing in the management responsibilities and the income.

Public policy will require more detailed spatial and local statistics on land use, demographics by size and type of farm and enterprise and on farm and off farm income of farm operator households.

4.0 **STRATEGY TO MEET REQUIREMENTS**

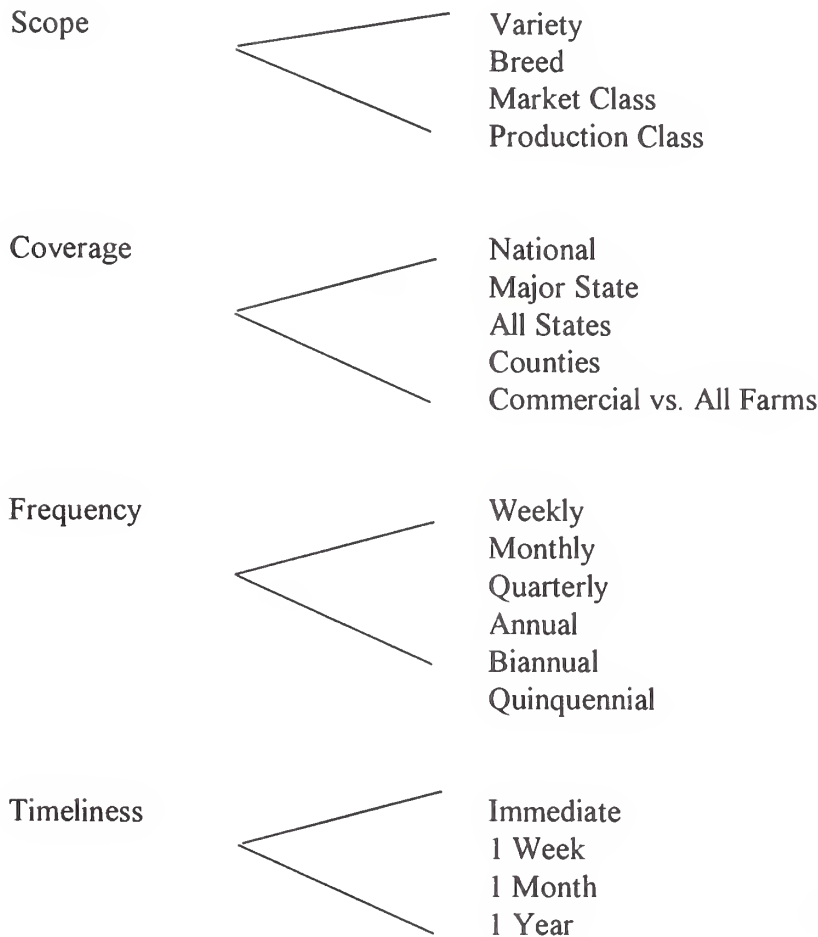
The following criteria will be used to define the future needs for agricultural statistics.

- 4.1** **Content** This involves simply defining the different commodities, agricultural inputs and demographic and environmental variables. NASS has a stated goal that at least annual estimates of production be provided so that 99% of U.S. cash receipts be measured. The content of the entire program will be open for review during the next several months.
- 4.2** **Scope** Closely associated with the content is the level of detail required for each item in the estimating program. For example, corn, as a major commodity, will be in the estimating program. The question is, will estimates be required for different market classes such as feed, oil, and sweetener? The need for wheat data by market class is already here. It will also be necessary to review the class data required for livestock. The breakdowns for cattle and hogs will need to be reviewed to determine if they are still relevant. Genetic engineering will raise many questions about scope.
- 4.3** **Coverage** This is an important variable because resources always need to be considered.

Coverage can be a geographic issue if the issue is whether to produce numbers that are National only, for National and major State, or for all States and counties. Another way to look at coverage is commercial production vs. all production. Should more data series be like the *Cattle on Feed* report that only includes operations with 1,000+ head monthly and all operations semi annually? Should we measure hog inventories the same way? Should coverage and scope reduced to provide monthly estimates of pig crop from the largest operations rather than complete coverage on a quarterly basis? Similar questions can be asked about several data series.

- 4.4 **Frequency** The frequency for which data items will be available is related to both resources and the characteristics of the item being measured. Frequency requirements are affected by the volatility of the item being measured and the main use of the data. In order to provide detailed geographic and spatial data, consideration will be given to reducing the frequency of some data items.
- 4.5 **Timeliness** This is a measure of the time between the data reference period and the issuance of the data. Crop forecasts issued around the 12th of the month are based on data collected around the 1st. The forecasts could be made several days earlier if U.S. level forecasts were prepared.

Examples of Criteria to be Considered



With the census capabilities, NASS is planning a data system that will be driven by different needs and methodologies rather than one size fits all. In order to supply the market sensitive information on a timely basis, national level sample surveys will measure the different components of stocks and provide the forecasts of production for major States and the U.S. These national level sample designs will focus on production regions. They will be optimally designed to provide estimates of major commodities by market class.

On the other hand, much more detailed information will be required for public policy and investment purposes. Fortunately, this information will not be needed as frequently nor as timely. This speaks to the design of annual multi purpose surveys or annual sample censuses followed by periodic complete censuses which will depend on the use of a business register of farms.

5.0 ISSUES

NASS fully intends to provide census results in 2002 that paint a complete picture of the Nation's agriculture, its operations, and its operators at county and other geographic levels. There are some serious content issues that need to be addressed not only for the 2002 census, but for the intervening years.

NASS intends to implement an annual sample census for years between census periods. The intent is to provide an annual measure of production for 99% of the Nation's agriculture with county data for core commodities such as corn, soybeans, wheat, cotton, hay, cattle, and hogs. This annual program will provide more information about demographics and structure that is now only available once every 5 years. This program will also provide additional detail about varietal and production classes that may not be available from within-year reports.

NASS will continue the within year program of monthly and quarterly reports. The intent is for all of these reports to contain National totals, individual estimates for major States and the remaining grouped into an "all other" category. Data for States in the "all other" category will be provided annually.

This program review will raise more issues than can be presented in this paper. However some examples follow.

- **Contract Arrangements.** Hog and poultry inventory production estimates are made by collecting data from the contractor rather than going to individual contractees. However, the census approach is to collect data from the individual contractee. The dilemma is not so much as how to count the animals or birds, but how to measure income, expenses, and other demographic information. What information is needed about contractors, what is needed about contractees? Crop Production is moving in the same direction, so the problem will become bigger. Is the contractee a farm operator or a service worker? What demographic information is needed about contractees - contractors?
- **Demographic Measures.** The census provides an overall picture of agricultural operations by connecting ownership to production, income, expenses and operator characteristics. What are the core items that must be captured this way vs. using a single purpose sample survey? Is the information for all items needed down to the county level? The reason for asking these questions is that there is a growing need for more detailed economic and environmental information. Sampling can be used in the census to spread out the reporting burden; however, county level information may not be available as a result.
- **Coverage and Scope.** There is a growing interest in having crop forecasts by production class. Using wheat as an example, what is most important; winter wheat forecasts by state, or regional winter wheat forecasts by class such as hard, soft, or white wheat? For livestock, what will be most important in the future; monthly estimates of breeding animals and pig crop for commercial operations or quarterly inventory estimates for all operations?
- **Income Measures.** There is a growing demand for measures of farm household income both from the farm and also off-farm sources. These questions are considered invasive by many and not answered. Australia which has a mandatory reporting system in place, attempted to add such income questions a few years ago. It caused such a public outcry,

that the questions were dropped. Panel approaches can be used to obtain such information but this will not provide estimates down to the county level.

6.0 CHALLENGES FOR THE FUTURE

The transfer of the Census of Agriculture to NASS provides a unique opportunity to integrate census and survey based data systems.

This opportunity poses several challenges for the future.

- The integration of the census data system with the annual data system will need to adjust to the trends affecting agriculture. This means some data series need to change, others eliminated, new ones started.
- The difficulty will be identifying trends and associated data needs soon enough to measure what is relevant, but not too soon to waste resources on irrelevant trends, or start too late to develop a meaningful data series.
- Considerable attention will need to be paid to phasing in the new as the old is phased out. Data users will need to help us decide how long these phase-in periods need to be.

Another challenge is that there is an insatiable demand for data. As the farm population shrinks, there are fewer operations to share the reporting burden. Good public policy decisions about agriculture require more detailed information about farm household income and expenses than many farmers are willing to share. New data sources and use of record keeping systems will need to be explored to minimize the reporting burden on farm operators.

A final challenge will be to keep the lines of communication open between the data users, data providers and the data preparers to ensure sound information is available for marketing and policy decision making.

FORMING A VALUE ADDED COOPERATIVE

Michael Warner

Chairman of the Board United Spring Wheat Processors
and Member of the Board of Directors of Dakota Growers Pasta Company

First, I would like to thank you for this opportunity to visit with you about my favorite subject.....Value Added Agriculture. It has become one of the hottest topics in agriculture, and from my perspective it should be. Hopefully, in some small way I can remove some of the confusion and add to the enthusiasm for what I think is the next historic step in the evolution of the greatest food production system in history. That is projecting production agriculture up into the food chain to process and market raw commodities in a highly efficient and seamless business system. The end result is greater value and quality for consumers and increased profits for the producer.

What These Cooperatives “Are” and “Are Not”

To get started today, I think we should make it perfectly clear what these cooperatives are and are not. They are not another version of the service cooperatives we are all so familiar with. Their job is to provide the farmer/rancher with goods and services like oil, fertilizer, fuel, feed, electricity and a market for our raw commodity. Their goal is to deliver these goods and services as cheaply and efficiently as possible. Traditionally, we don't look to them as any source of big cash income to our farms and ranches. They tend to retain most of their profits to make capital improvements and do their job better. So, they use the familiar formula of 80% retained earning and 20% cash.

The value added cooperative's main job is to make as big a profit as it can and send you the check in the mail, which you can then spend as you see fit. You will make a significant investment in shares of the company, and these shares represent a “RIGHT AND OBLIGATION” to deliver a certain number of units of production to the cooperative, such as bushels, tons, animals or pounds. There is a limited number of shares issued and these shares can be bought and sold between farmers. So, they can and do appreciate in value, depending upon the level of profits. These profits are paid out on a per share basis predominantly in cash with minimum amount retained. Therefore, they not only give you profits each year, but they also go on your farm and ranch balance sheet. In the successful value added cooperatives, the value of these shares can become one of the single greatest sources of growth in the asset base of the farmer/rancher who is involved.

Credibility Is the Most Precious Commodity for Success

Over the years I have been involved in several of these efforts. There have been some useful refinements, but they tend to progress in pretty much the same manner. There is a lot of specific and technical information about what exactly you have to do that are legal and financial requirements. However, they are just that.....requirements. There is also a natural progression of events or steps, if you will, but they are for another program. What I want to talk to you about are the “Real Reasons” you get a successful business started. They basically boil down to answering two fundamental and simple questions for the potential investor.

1. Does this make sense?
2. Who am I doing business with?

We could spend some time here talking about cooperative structure, what you do first, second and third, but all that can be retrieved quite easily from cooperative law firms and others. These are the two things that really make the venture go or not go. As simple as they sound, these questions contain a multitude of issues that must be resolved if you are to be successful. If you don't answer these questions to the satisfaction of yourself and other potential members; you aren't going anywhere. By answering these two questions properly you take ownership of the most precious commodity you will need for success and that is “Credibility”.

You must remember, you need these other investors to help get the business going. Its for the oldest reason in the world for people to come together and pool their resources. They can't do it themselves. In order to get their help, you must know your stuff. You must be able to answer all questions, and answer them right. If you ever look like you don't know what you are talking about or heaven forbid, you appear to be lying; you will lose all credibility in a single moment and then you are lost.

Credibility Question #1: Does This Make Sense?

At the inception of United Spring Wheat Processors, we were actually starting cooperative, where its only business was to find a business that would add value to spring wheat. Talk about making sense. When our potential member/investors first sat down at one of our meetings, we were asked many similar questions, and here are some of the answers.

Q: What are you going to make?.....A: Something out of spring wheat.

Q: What will that be?.....A: We don't know.

Q: Where will you locate a plant?.....A: We don't know.

Q: How much money can we make?...A: We are not sure.

Q: How much to invest?.....A: We don't really know that either

Of course, I am being facetious. What we really said was this.

“We see other people in our region, like sugarbeet and durum growers, making good profits by adding value to those crops. We think it is time for spring wheat, the number one crop of our region, to do the same thing. To do that we have a plan we think will work, if you will help.”

So, we proceeded to tell potential investor/farmers in four states through over 100 meetings, what we thought “Made Sense”.

You Need Help

We said we didn’t think we, as farmers, were competent to form a business to add value to spring wheat on our own. We planned to hire people to help us do that. When you think about it, the trick to starting any business does not hinge on what you know, but knowing what you don’t know. Then proceeding to find the answers. Our intentions were to conduct a nation wide search to find a CEO. This person had to have experience in the spring wheat industry, and could help us form the business. He would know who we had to hire and what we had to do. We wanted him to be well known in the industry and particularly by the customers for our products made from spring wheat. Why did we want this? To add “Credibility” to our effort. In the end, we hired Mr. Gary Lee. He was the VP of Dry Milling Worldwide for Cargill, and also had been an internal strategic planner for Cargill.

Business Plan Must Be Customer Driven

We then told the potential investor/member that we believed this business must be designed from the end customer back to our fields. The customer was the best source of telling us what to build, where to build and how to run our business. Many value added cooperatives have been started as an economic development effort. The idea is to build a plant somewhere in your state or region and generate some jobs. If you do that without finding out where the customers are, who the competition is and how you can provide products efficiently and competitively; how can you hope to be successful. All too often the predominant marketing strategy in value added cooperatives is a “build it and they will come” market plan. This is one of the reasons many have failed.

The truth is the building of a plant is the easy part, and it is nice for the town that gets it. Often the location has something to do with where certain board members live. However, it only directly benefits about a 30 to 50 mile circle around the plant with any real impact. If you are not from that town, what do you get out of it? These business must be driven by customers needs, not the economic development department of you county or state, or it will fail. Another truth is that the best economic development in rural America is profitable farmers and ranchers with strong balance sheets using and improving the infrastructure that already exists.

So, we pledged to our potential members that the only criteria we had for building a plant or plants was that they would go where they had the best chance of making some money. In fact, our first plant is currently under construction in Macdonough, Georgia. It will be making frozen dough and frozen partially baked specialty and crusty breads. Keep in mind all our members are in North Dakota, Minnesota, South Dakota and Montana.

This Takes A Lot of Money

After explaining our plan, which essentially was starting a business to find and create a business; we told our potential members that we thought this would take a lot of money. Our best estimate was around \$1 million to hire the competent people and do the business planning. Improper capitalization is also a common trap for start up businesses.

One of the myths we enjoy in America is personified in the old Horatio Alger stories. You know the ones.....honest young man of pure heart and a dollar in his pocket is destined to become a millionaire through hard work and perseverance. In rural America, we particularly like that myth. We all want to believe we can start these business on the cheap. You know, start small, maybe even very small, and grow the business. We kind of believe we can go into a prospective customer and be taken seriously by saying something like this.

“Hello, we are a bunch of farmers, and we would like to make something out of our commodity. We in turn would like you to buy it. Now, we don’t know how to make it. We don’t have anybody hired who knows how to make it. We don’t have a plant to make it with. In fact, we don’t even have any money. Now, knowing all that, would you be interested in buying something from us?”

We then asked our potential members, who are pretty big buyers in their own right, if they would buy anything from a person like that. Every business has a critical mass in terms of size and production capability. If you are not that size to begin with, you will fail. This is something farmers actually instinctively know, but they still like the idea of those Henry Ford/ Horatio Alger....start small success stories.

We then told our potential members that in order to do the analysis we thought we needed to do to start the business, have credibility with the people we wanted to hire and credibility with our potential customers; we needed to get some serious money together. We then proposed what was essentially an installment pay plan to cooperative formation and membership.

First, we asked for what we called “Seed Money” of \$200 per potential member. We would use this money to start the analysis of our industry, and to conduct a search to hire our CEO. This would give each potential member the right to take membership in the cooperative, once we got it formed. At the same time we asked for the seed money, we told them we would be coming back for more money later. We called this money “Credibility Money”. This money would be put in an escrow account in their name, and

they would then become members of the cooperative. We could not spend this money in escrow, but we could use the interest income generated by these funds to continue the business planning and formation.

We felt, and the potential members agreed, that a significant show of money would give us credibility with a lot of people that were going to be very important to the success of the business. Customers: We wanted to be able to go into prospective customers, whose information and interest we very much needed, and say something like this instead.

“Hello, we are a group of farmers that intend to make a spring wheat based product. We would like you to consider being our customer. In order to prove that we are serious about this, we have hired our CEO, and you know him and his reputation. We have amassed \$15 million dollars to start the business, and we intend to collect significantly more than that from our members when our business plan is complete.”

We also needed credibility with the banking community. Not only to finance the business, but also to provide our members with financing to buy the stock. We needed credibility with the additional people we would hire to form and operate the business. They needed to see a well capitalized business for them to make a move to work for us. Finally, we needed some credibility with ourselves as members. We needed to know that each of us were committed enough to the idea of adding value to spring wheat that 2850 of us were willing to put up at least \$4,800 to start the business.

Finally, we told the membership that we would come back with a complete strategic business plan. They could then take a final look. If they liked the plan, they could convert the \$4,800 in the escrow account to stock in the cooperative. In fact, we promised them an opportunity to invest more than that, if they wished.

All of this “Made Sense” to 2850 spring wheat farmers in Minnesota, North & South Dakota and Montana. In the end, they amassed over \$25 million to start the company. It made sense to them, because we stayed centered on some simple truths that all the members knew, and that maintained that “Credibility”. Truths like, “it takes money to make money”. They realized that they could not do it alone, and they needed to cooperate with each other to get what they wanted.

They also realized there was a “Catch 22” in the proposition, unless they bought into the concept. If they wanted to wait and see if the deal was a good one, there wouldn’t be any money available to develop the deal in the first place. They realized they had to decide now, at the beginning, whether they were in or out, if they really wanted to add value to spring wheat. They were not going to get to wait for all the money to be spent and the work to be all done, and then have someone come by and beg them to invest.

Credibility Question #2: Who Am I Doing Business With?

For me personally, this is the more important question of the two proposed. When USWP went about organizing its steering committee, we had two criteria for those that became members. #1: They had experience in the formation of a value added cooperative. #2: They had strong expertise in the spring wheat business. In some cases, we got both in one person. The choice of these people and the signing on of their support was the single most important asset of the whole effort.

Think about it. If you don't know anybody involved in a proposition; are you going to invest in it? We all are going to ask ourselves many questions. Can I trust these people? What is in it for them? How is their track record on their business judgment? What is it about these particular people, that should make me want to put my hard earned money in their hands? These are all fair questions.

On the USWP steering committee we had exclusively farmers, and they filled the criteria for being members quite well. We had three previous members of the American Crystal Sugar Cooperative Board of Directors. They each had over 20 years of experience in being part of a value added cooperative with over \$600 million in sales. This group included a past chairman of the board. We had several members of the board of directors of Dakota Growers Pasta Company, as well as their chairman. Many of the members had owned stock and been members of the sugarbeet cooperatives for years, as well as Dakota Growers Pasta Company.

There were members on the steering committee from all four states wheat promotion commissions, wheat growers organizations, some current and past presidents from those groups, the immediate past president of the National Association of Wheat Growers and members and officers past and present of some of the regions general farm organizations. That whole group consisted of 50 members of that caliber from across the four state region. We obviously made a concerted effort to get people involved that potential members either knew or knew of their reputation. We printed their resumes in our first brochures. We wanted to leave the potential members with a feeling that "If this group couldn't do it.....who could?".

To further validate our position we did a few extra things. We took no per diem, and the executive committee of the steering committee were the only ones that got mileage, meals or lodging. This re-enforced the idea that we were truly committed. We held a composite of over 100 meetings across the region. That is a lot of work, and the members knew and appreciated it. These are all elements of rural America's tradition of "Barn Raising", showing a willingness to donate time and resources for the good of the greater group. The real truth is, we were just doing what so many have done in the past when they wanted to start a business. If they couldn't do it on their own, they asked for help.



Conclusion

This is how we went about answering those two very important questions. If you decide to get involved in value added, they are the same fundamental questions you must ask yourself and eventually answer to many other people.

Does this make sense?

Who am I doing business with?

Starting these businesses is not an academic exercise, although information is very important. You can plan and analyze till the cows come home, but success or failure is embodied in these two simple questions. Business people know that instinctively.

In the case of USWP, these two question were answered by conducting a first class and rather expensive sales effort. We enlisted the best we could find of legal counsel to help take care of all legal matters, consultants to do the business planning, financial experts to prepare the financial projections and a very farmer specific and talented group of public relations people. They helped to get the word out over four states, and provided computer generated presentation material, proper sound and other visuals.

We also had an important educational edge in our region, and this was an important advantage to our efforts. Many of these cooperatives have been started. Some have been glowing successes. Others have been abysmal failures. Success or failure, they have made the farmer/ranchers of the upper Midwest very familiar with value added cooperatives. In general, people will not do what they don't understand. So, part of "Making Sense" is to understand the fundamentals, and that really is an education process. Isn't that what this meeting is about?

For those efforts, I applaud the organizers of these very educational outlook conferences and thank you for the opportunity to contribute.